SOAP

SANITARY CHEMICALS

Beauty... plus fragrance

Fragrance adds the finishing touch to beauty. While nature herself is the greatest of all perfumers, the art of successful perfuming is acquired by man only through long experience. Your soaps and cosmetics must have pleasing fragrance to create consumer appeal. For over a century, Dodge & Olcott Company has supplied perfuming materials for many prominent toilet soaps, cosmetics and perfumes. Wide experience and extensive research have enabled D & O to satisfy the most critical manufacturers. Such benefits of long and successful perfuming experience are yours for the asking.

DGE & OLCOTT COMPANY
NEW YORK
: Chicago : Philadelphia : St. Louis : Los Angeles
Plant and Laboratories — Bayonne, N. J.

August 1941

..an exact chemical process made more certain by the

GUARANTEED

PURITY and UNIFORMITY

OF

STANDARD SILICATES

ALKALI

DIAMOND ALKALI COMPANY • Standard Silicate Division

Plants at CINCINNATI · JERSEY CITY
LOCKPORT, N. Y. · MARSEILLES, ILL.
DALLAS, TEXAS

General Offices • PITTSBURGH, PA.

Volume XVII Number 8

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

AUGUST
1941

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 75.

Contents

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Cut Costs and Maintain Soap Efficiency With this General Chemical Team

Here's one answer to your cost problem. General Chemical Sodium Silicate plus General Chemical TSPP can be made to work together *to hold down soap costs with no decrease in efficiency!*

Sodium Silicate builder gives your soap the firm-bodied qualities you want . . . helps increase bulk and retards rancidity in the finished product. Soap, "stepped up" with General Chemical TSPP and General Chemical Sodium Silicate, maintains a high detergent efficiency and sudsing power, at the same time enhancing appearance. Arrange now to try this cost-reducing combination in your plant. Write *today* for further information on General Chemical Sodium Silicate and TSPP.

General Chemical Technical Service Division

This Division is manned by a staff of technically trained men thoroughly conversant with the use of chemicals in the Soap Industry. Inquiries for information are given prompt attention—and where advisable, a representative of General Chemical Company will be assigned to work on the problem with the customer in his own plant.

GENERAL CHEMICAL COMPANY
40 RECTOR STREET, NEW YORK, N. Y.

Sales Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N. C.) • Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Milwaukee • Minneapolis • Newark (N. J.) • New York • Philadelphia • Pittsburgh • Providence (R. I.) • St. Louis • Utica (N. Y.)
Pacific Coast Sales Offices: San Francisco • Los Angeles
Pacific Northwest Sales Offices: Wenatchee (Wash.) • Yakima (Wash.)
In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

We take a Tip from the Circus

The Story of a Problem in Shipping Containers

YEARS AGO, the circus found out:

—how to stow elephants in box cars,

—how to fasten heavy animal cages to flat cars,

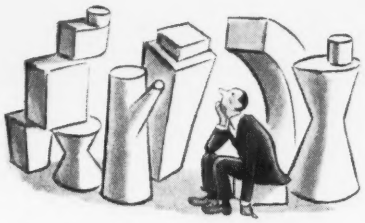
—how to pack 1000's of yards of canvas.

And all to the end that this property would arrive at the next town in undamaged condition.

Now, believe it or not, American Can Company has long had an equally complicated shipping problem.

Naturally, we don't ship elephants, tent canvas, or caged animals. But we *do ship* objects which are in themselves just as various in size and shape. Which are just as difficult to stow in freight cars. Which have just as diverse handling problems. *And which, indeed, are probably more easily damaged in transit than a circus's property.*

These objects are metal containers. Round ones. Flat ones. Square ones. Containers with spouts. Containers made of fiber. Containers in almost as many shapes and sizes as there are solids in a geometry text book.



So, taking a tip from the circus, we decided to find out the best way to stow and brace these products in freight cars. *And all to the end that containers would arrive at the customer's warehouse in undamaged condition.*

The problems we ran into were not easy ones to solve.

For, as you probably know, freight cars themselves differ in size. As you probably don't know, they vary in length from 30 feet to 60 feet and in width from 8 feet 5 inches to 9 feet 2 inches. And we soon found out that stowing any one type of container in any one type of freight car was a problem in itself.

All right. But there are thousands of types of containers. And many types of freight cars. *That* makes a whale of a lot of ways of stowing and bracing shipments.

Then, there are what traffic people call "mixed shipments." Different types of containers in the same car. And this, too, we had to work out for all types of freight cars and all probable combinations of containers that would be loaded in them.

To keep ourselves from getting dizzy, we wrote down all the different methods of stowing and bracing containers. When we got through, we had two, good-sized volumes . . . each about as heavy and as thick as a New York or Chicago telephone directory.

But all this was "theory" and, not content with it, we tested it out in sample freight cars with sample loadings at our switching yards.

There, day after day, the railroad butted these sample cars around. Gave them far more jouncing than they'd ever get in actual transit. And only when a car came through this practical "billy goat" test with flying colors, would we O. K. the stowing and bracing method as "sufficient."

Today, American Can customers have a minimum of headaches from shipments arriving at their warehouses in less than perfect condition. *American Can Company, 230 Park Avenue, New York, N. Y.*

CANCO

Other "Plus's" American Can Offers To Its Customers

- 5 laboratories employing 134 people with college training, academic, or professional degrees in the pure, natural, or engineering sciences.
- 13 points from which customers' machinery is serviced . . . 6 points at which customers' machinery is built.
- 67 plants located strategically in the U. S., Canada, and Hawaii.
- A factory-trained sales staff who are specialists in many different types of industry.
- An executive personnel backed by a financial strength that is in itself a tangible business asset.

AMERICAN CAN COMPANY

230 Park Avenue, New York, N. Y.

KORK-N-SEAL . . . LIKE RENUZIT DRY CLEANER . . . MAKES A BIG HIT WITH HOMEMAKERS!

The Radbill Oil Company of Philadelphia, manufacturers of Renuzit, were not content simply to make a satisfactory product. They also wanted a *closure* that would contribute *additional satisfaction* to the users of their popular dry cleaner. Consequently, they chose KORK-N-SEAL, the cap that bounces off with a flip of the handy little lever—and is easily snapped back on for a liquid-tight re-seal. KORK-N-SEAL is adaptable for glass and tin containers, and complete information may be obtained by writing: Williams Sealing Corporation, Decatur, Illinois—*a Division of Crown Cork and Seal Company*. The container illustrated is by Crown Can Company.

Pelargonium, a recent creation which did much to renew the interest and popularity of the carnation throughout the horticultural world.

AIDING NATURE IN NEW CREATIONS

The horticulturist, aiding nature in perfecting new creations, must possess the knowledge, experience, and perfect skill to carry out as many as ten thousand trials to secure two new varieties that will prove successful. So, too, the creative chemist, in blending new odors for perfumes and cosmetics, is guided both by his background of knowledge and experience and by an intuitive skill to sense pleasing combinations of odors.

Givaudan's trained chemists possess to an unusual degree this intuitive talent for evaluating perfume materials. The value of their special gift is attested by the long list of the successful perfume odors that have come from the Givaudan laboratories. Many of the leading manufacturers of perfumes, soaps and cosmetic products rely on Givaudan's skill in the production of perfume materials—of odors specifically designed for a single product, or suitable for use in a complete line of toilet preparations.

You can profit by Givaudan's skill and experience if you are planning new lines, or adapting others to meet changing trends. Givaudan's chemists will gladly give recommendations on specific problems.

FOR YOUR REQUIREMENTS ON PHENYL ETHYL ALCOHOL

Givaudan's Phenyl Ethyl Alcohol is noted for that important feature always demanded by the perfumer—*purity*. It is maintained by a strict system of checking and re-checking—scientific control over every phase of production. Givaudan's Phenyl Ethyl Alcohol is characterized by its sweet rose-like note. Let our long experience in producing this important material guide you in your search for quality.

★ ★ ★

Givaudan's Phenyl Ethyl Alcohol is made by a process fully protected by U. S. Patent Nos. 1,944,959; 1,944,958; and 2,013,710.

DELAWANNA, INC.

330 WEST 42ND STREET • NEW YORK, N. Y.

One of Michigan Alkali's full-revolving electric shovels loading limestone at Alpena, Michigan. The quarry is worked 8½ months a year. An average of 10,000 tons is taken out per two-shift day.

Sinking a dynamite charge in the Michigan Alkali quarry, Alpena, Michigan.

BACK when the earth was hundreds of thousands of years younger, strange animals roamed its face. Still others lived in the waters that covered much of what is now dry land. They're gone now, but their skeletons are still here, changed by Nature's chemistry into valuable limestone!

Michigan Alkali Company quarries a 600-acre deposit of high-grade limestone at Alpena, in Northern Michigan. Blasted out of its solid formations, the limestone is scooped into electric cars . . . hauled away to be crushed, screened and recrushed . . . loaded into Michigan Alkali ships . . . then sailed 200 miles down the lakes to Wyandotte where it is combined with brine and coal to produce alkalies.

With 200,000 tons of limestone coming from each acre of this quarry, and with 1,750,000 tons being taken out annually, Michigan Alkali is able to maintain its high output of alkalies; able to supply you with the chemical products you want—when you want them!

MICHIGAN ALKALI COMPANY

PLANTS: **WYANDOTTE, MICHIGAN** • ***GENERAL SALES OFFICE:*** **60 E. 42ND STREET, NEW YORK CITY**

DISTRIBUTORS IN ALL PRINCIPAL CITIES • ***Manufacturers of:*** **Soda Ash • Caustic Soda • Dry Ice**
Bicarbonate of Soda • Calcium Chloride • Liquid Chlorine • Calcium Carbonate • Coke • Cement

THE COUNTRY'S FOUNDERS, in uniting the separate colonies into one great nation under the Constitution of the United States, formed a notable merger of resources and facilities for the greater benefit of the people . . . their industries and commerce.

It is to this historic pattern, expanding the advantages of those we are privileged to serve . . . that the Niagara Alkali Company and the Electro

"ORDAINED AND ESTABLISHED" FOR THOSE WE SERVE

"SIGNING OF THE CONSTITUTION," BY J. B. STERNS. REPRODUCED THROUGH COURTESY OF ROBERT FRIDENBERG GALLERIES.

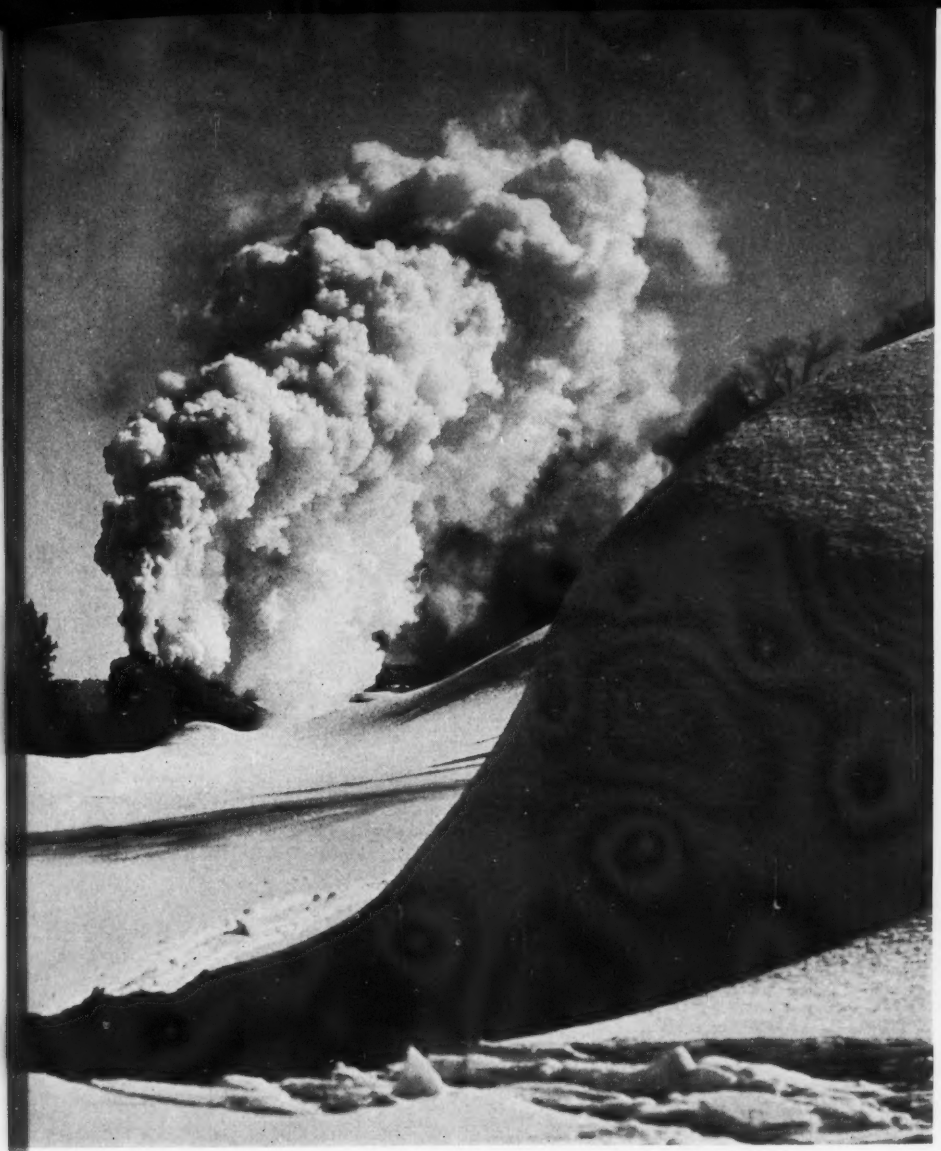
Bleaching Gas Company, affiliated since 1915, now unite as one enterprise in the fields of chemical research and manufacture under the name of Niagara Alkali Company.

As the Niagara Alkali Company, we will endeavor to solidify our new greatness by continuing to maintain the ideals and high principles of product integrity that always identified our services, while expanding the scope of these efforts for greater usefulness to both our old customers and new friends.

Niagara
ALKALI COMPANY
60 EAST 42nd STREET, NEW YORK, N. Y.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
Liquid Chlorine

EBG NIAGARA ALKALI COMPANY



Snowbound

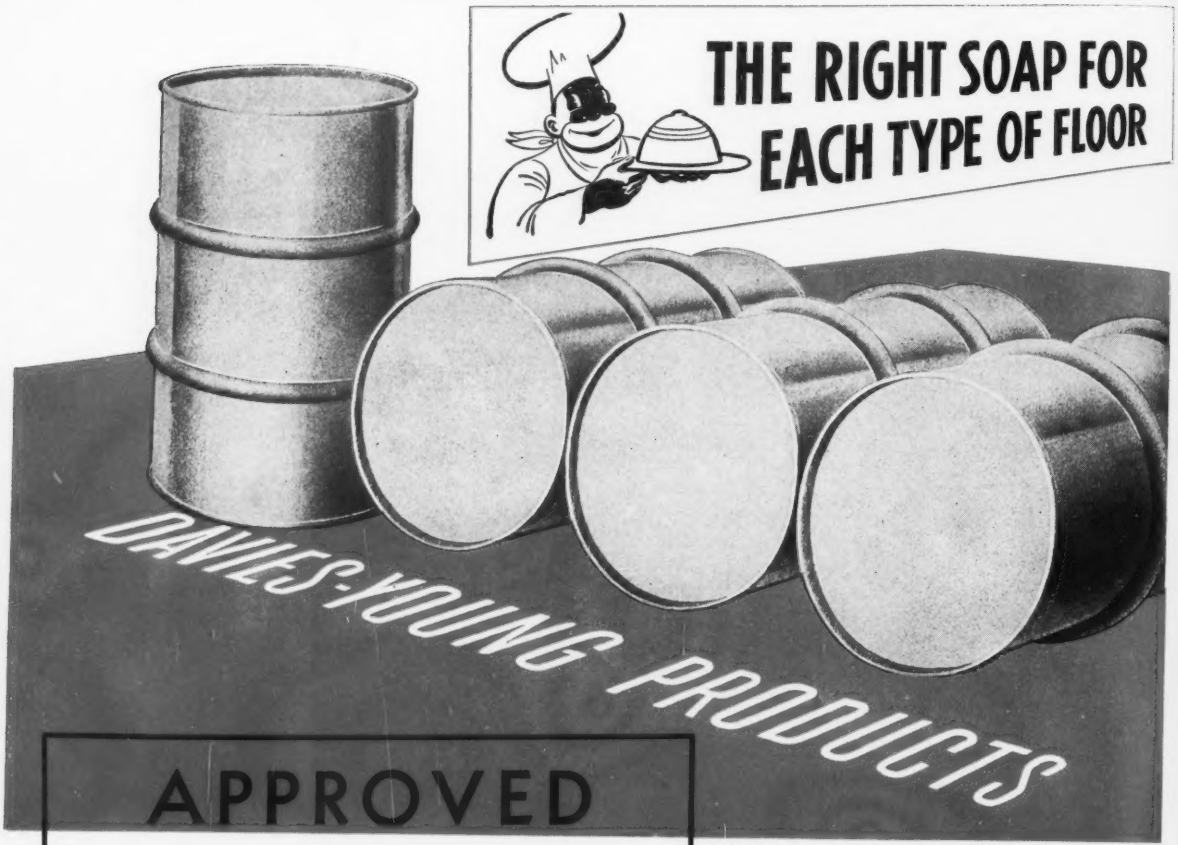
In March of 1940, a seasoned salesman was snowbound in Boston when all traffic by rail and road was paralyzed. Due in New York, his predicament enforced his first plane trip. For years he had traveled by train and while he comfortably slept in Pullmans, aeronautical engineers were contriving better design and safety in air transportation. When his faithful train failed, the modern plane was ready to do the job, and well.

In times like these, when regular supplies of essential oils and raw materials have failed, the call for synthetics and substitutes, is raised. And the answer, "ready", is heard from the ranking firms in our industry who have, through the less hectic years, kept their research laboratories awake to new methods, new processes and new products.

Bergamot, Lavender, Geranium, Ylang, Orris and many other materials, are practically unobtainable, but synthetics and truly excellent synthetics, are ready to jump in and fill the gap just as the airlines were ready when rails were snowbound.

If your stocks are low, check with van Ameringen-Haebler on these exceptional synthetics.

VAN AMERINGEN-HAEBLER, INC.
315 FOURTH AVE NEW YORK CITY



APPROVED

By The Rubber Manufacturers' Association, Inc.

"BUCKEYE" PLAIN LIQUID FLOOR SOAP

"BUCKEYE" SASSAFRAS LIQUID FLOOR SOAP

"BUCKEYE" WAX CLEANER

"BUCKEYE" SPECIAL RUBBER CLEANER

will again appear in the list of approved cleaners issued by The Rubber Manufacturers' Association, Inc.

It's good service to sell the right cleaner for the right surface. Different types of floors require different cleaners for proper, economical maintenance. Davies-Young soaps are each specifically compounded for certain types of floors. In addition to the four products listed at left, Davies-Young Floor Soaps include

"EX-ALK" Liquid Cleaner (controls alkalinity)

"SANI-SCRUB" Liquid Soap

"FLOREX" Liquid Detergent.

We will be glad to suggest recommendations for particular kinds of floors.

THE DAVIES-YOUNG SOAP COMPANY
DAYTON • OHIO

THE DAVIES-YOUNG SOAP CO.
Dayton, Ohio

Please send us samples, descriptions and prices of Liquid Floor Soaps.

Name .....

Address .....

City and State .....

Quality Repackaged Products
BEGIN WITH
Quality BASIC Products

THIS COMPLETE LINE FOR Household Cleansers, Commercial Cleansers, Soap Powders, Bath Crystal Bases, Household Bleaches, Drain Pipe Solvents, Demothing and Deodorizing Preparations, Termite Control

SOLVAY SNOWFLAKE* CRYSTALS—Pure white, crystalline sodium sesqui-carbonate, immediately and entirely soluble, always free running, Solvay Snowflake Crystals is an excellent water softener and effective soap saver.

Perfect solubility enables this mild cleanser to do its work without leaving a residue. Snowflake Crystals also makes a perfect base for bath salts.

SOLVAY SPECIAL CLEANSERS—mixtures of basic materials used in all general cleansing. Solvay manufactures a complete line of these cleansers, covering every cleansing need which can be filled by the use of milder types of alkali. The Solvay Products book, which describes these products, can be obtained from any office of the Solvay Sales Corporation.

SOLVAY SUPER ALKALIES—Solvay Super Alkalies are specially prepared mixtures of a stronger type than the Special Cleansers. These alkalies are well adapted to the heavy duty type of cleaning.

Full information will be supplied promptly upon request.

SOLVAY DETERGENT—Detergent of a special grade adapted to various kinds of scouring, is another Solvay line which is providing profitable business opportunities in private label brand.

Another field in which Solvay quality enables you to beat competition! Full information upon request.

SOLVAY FLUF*—Fluf makes an ideal cleanser to add to your line of repackaging products. It is an extra light soda ash made especially fluffy, bulky and light by a process that is exclusive with Solvay. Its weight per cubic foot is approximately ⅔ that of regular soda ash.

Fluf is particularly valuable where maximum bulk with minimum weight is required, as in repackaging.

SODA ASH—58% Dense, Light and Extra Light—Solvay Soda Ash is made of materials selected with the utmost care. It is a product of high purity, controlled in its manufacture by rigid specifications that have been formulated through more than half a century of experience.

50th ANNIVERSARY 1881 • 1941

*Reg. U. S. Pat. Off.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK, N. Y.

BRANCH SALES OFFICES:

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

CAUSTIC SODA—Solid—Flake—Liquid—Ground—Powdered—The high standard of quality which The Solvay Process Company has established in the alkali field is well exemplified in Solvay Caustic Soda—made from soda ash manufactured by the Solvay process. For the convenience of the consumer, Solvay Caustic Soda is delivered in the five forms listed above.

CAUSTIC POTASH—Solid—Flake—Liquid—The same high quality that has earned for Solvay Caustic Potash Liquor a preeminent place in the field is also obtainable in the Flake and Solid forms. Solvay Caustic Potash typifies the excellence which has made Solvay Products the outstanding choice of soap makers everywhere.

SOLVAY PARA-DICHLOROBENZENE—Wide selection of grade sizes in Fine—Medium—Coarse—Super-Coarse Crystals—Especially well adapted to block manufacture. Solvay Paradichlorobenzene is supplied in many carefully graded crystal forms, insuring perfect blending with colors and perfumes.

A product of exceptional purity. Delivered in a selection of packages wide enough to meet all marketing needs. Write today for prices and full information.

SOLVAY ORTHODICHLOROBENZENE—For making insecticide sprays, metal polishes and grease and tar solvents. It cuts greasy films and dissolves most metallic oxides. A water-white liquor, shipped in 55 gal. drums and 5 gal. cans.

The important ingredient for the termite exterminating solutions.

SOLVAY SALES CORPORATION
40 Rector Street, New York, N. Y.

Gentlemen: Please send me a copy of the Solvay Products book, which gives complete information on all Solvay Products.

Name.....

Company.....

Address.....

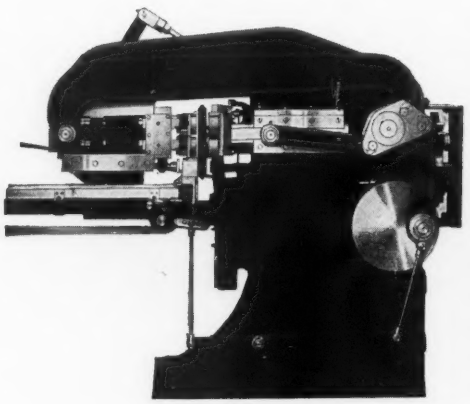
City..... *State*..... AJ-841

All JONES PRESSES *are good*

...But *there comes a time when even they, after ten or fifteen years gruelling labor, operating from 1 to 3 shifts daily,*

are all in—no longer good

STRAINED, cracked and rusted, with shafts, bearings and plungers worn out of all shape and precision, their operation costs more than it is worth. No human contrivance will last forever. Don't expect the impossible. Don't waste money trying *to repair* a machine that is *worn out* from drive to offtake. It costs more to make such a machine do really first class work, temporarily, than to install a new one, a new model that will last much longer and do a class of work never before attainable. Perfect pressing is in demand now for both laundry and toilet soaps. Though you have an old type press in good condition it would still pay to install in its place a new model TOGGLE OPERATED PRESS, for the sake of greater economy, noiseless, nerve-saving operation, plus far better looking and more salable soap.



Type K Laundry Soap Press

R. A. JONES & COMPANY, INC.

P. O. Box 485 Cincinnati, Ohio

The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

AS THE EDITOR SEES IT

DEVELOPMENTS in the Pacific focus attention on coconut oil. Even though there is at present a marked scarcity of bottoms to carry coconut oil from Philippine ports to the United States, actual hostilities would make this situation more acute. In all likelihood, supplies of coconut oil would be shut off from the rank and file of the soap industry. Those soapers who have anticipated this situation to some extent, and who have large stocks of coconut oil on hand, would be able to carry on until the exhaustion of their stocks. After that, it would be a case of getting along as best they could with little or no coconut oil.

If there is one oil which has always been considered indispensable in soap manufacture, it is coconut. The great bulk of our toilet and laundry soaps would suffer without it, particularly when they are used in hard water districts. The liquid soap and shampoo manufacturers would be just about crippled, for today about ninety per cent of all such products are made from coconut oil. Those who depend on the lauric acid esters of coconut oil for the manufacture of lauryl alcohol detergent derivatives would be in the same boat. All told, a shortage of coconut oil is probably the most serious of all fat or oil shortages for the soap industry.

The prospects of substitutes for coconut oil are not bright. Babassu oil, potentially a large tonnage item with characteristics similar to coconut, is in no position today to replace any material part of coconut tonnage. The same is true of palm kernel oil. Synthetic lauric acid is still of insufficient production to be a factor. Beyond these, there are no suitable substitutes.

With an American public which has been educated to the free-lathering properties of soaps and shampoos containing coconut oil in good proportion, the effects of coconut oil conspicuous by its absence can well be imagined. In Brazil, there should lie the opportunity in a coconut scarcity to exploit babassu oil in a manner which has never existed before. But are they smart enough to do it,—or will they immediately go to work to kill the goose that lays the golden eggs, as they are doing in the case of carnauba wax?

Let us all sincerely hope that the supply of coconut oil will not be shut off, for the seriousness of any such situation would not be fully realized until it were actually upon us. A little is better than no coconut oil at all!

THE idea of including resale prices in catalogs issued by manufacturers to jobbers and distributors is, we believe, a good one. We note that this policy is being followed more and more by leading manufacturers who sell only to the jobbing trade. That it tends to guide the jobber and at the same time stabilize the market is quite apparent, and in doing this, it eliminates cutthroat competition and permits a fair profit. And the habit of some jobbers in going back to the manufacturer for lower and ever lower prices to cover their own price-cutting mistakes, is certainly discouraged.

Nobody knows better than the manufacturer of the product what that product should sell for to the consumer, whether it

be small-package trade or large containers to industrial users. He knows best what the jobber's margin should be, and he also knows that if his suggested resale price is too high, his jobbers are going to lose business and his goods will not sell. In the interests of further stabilizing markets and insuring a fair margin for both manufacturer and jobber, it is an idea which might well receive wider consideration among producers of soaps, shampoos, waxes, cleaners, and the like.

THE Federal Specifications Board is currently revising specifications on a whole series of soap products in the light of the very fine study of the subject that Committee D-12 of the American Society for Testing Materials has been conducting over the past few years. In the revised standards most of the recommendations of the committee are being followed closely. There is in the present tentative draft of the new government standards, however, one important point of divergence from the A.S.T.M. specifications that in some cases might be rather costly to the soap industry. We refer to the rather rigorous clause covering computation of settlement value for soap deliveries.

In the case of toilet soap, for instance, where a maximum moisture content of 15 per cent is contemplated, the net delivered weight is to be recomputed on a basis of 12 per cent moisture, with the supplier being penalized for moisture in excess of this amount. This procedure is of course quite equitable and acceptable. The rub comes, however, in the stipulation that the supplier is not to be credited for increased soap content of the delivery when the moisture tests lower than 12 per cent. Under this basis of computation soap manufacturers might suffer unfairly where shipments testing above the 12 per cent moisture figure dried out in transit. They would be penalized for the loss in weight of the delivery, without receiving any credit for the increased percentage soap content. A good rule, we have always thought, should work both ways.

WHAT makes one soap milder than another? In the light of recent advertising in which the emphasis is on mildness, this question has taken on added stature. In fact, it seems that several leading soap manufacturers have all at once discovered the merit of mildness in a toilet soap and are concentrating their big advertising guns in this direction. So right at the moment, if your toilet soap isn't as mild as all get-out, you had better get busy right away and make it so. For the tocsin is being sounded in the interest of mildness, and if you don't say your soap is mild too, doting mothers of fat babies are going to forget you when they give their weekly soap order to Mr. Ratzheimer, who runs the corner grocery store.

Some soapers have asked us just how can they tell if their toilet soaps are mild. And others, too, — including an organization whose heart bleeds constantly in the interest of the downtrodden consumer, — want to know if this mildness talk is all that it's cracked up to be. Or is it "just advertising?" And was the testing done by a chemist, do we suppose, or by a seer with crystal ball?

Honest and truly, we don't know. But inasmuch as eminent dermatologists,—with the accent on the "eminent"—are usually the fellows who do this sort of investigating, generally for fees directly proportional to their eminence, we suspect that maybe some patch tests on human skin are the basis for these claims. And patch tests just can't be made by any ordinary doctor,—not for advertising they can't. It has to be an eminent dermatologist or nothing. So if you can't dig up a dermatologist and induce him to find what you want, we suggest that you talk about the perfume in your soap, or the weather or the world series in your advertising, and temporarily forget the mothers with fat babies.

What Future For BABASSU?

So much has been written about the potentialities of the Brazilian babassu nut industry and the implications for American industries which the full development of this versatile tropical nut would carry with it that apparently an erroneous impression has been formed by many firms and individuals interested in oils and fats. The American soap industry, is naturally vitally interested in the possibilities of an expanding production of a South American oil which so closely resembles coconut oil as a soap stock. The soap industry in the United States uses and has used for many years the largest percentage of all the coconut oil consumed in the United States. Likewise, it has been one of the principal consumers of babassu oil ever since the United States began importing the oil on a commercial scale in the middle 1930's.

During these times of dislocation of world trade, it seems particularly appropriate to examine the true possibilities of this oil upon which so much attention has been focussed as a replacement material for coconut oil. Should a condition ever arise making it impossible for American soapers to obtain sufficient coconut oil to meet their volume requirements of the oil as a free-lathering stock, the industry would be obliged either to unearth equal quantities of some other quick-lathering soap stock or else change its formulas entirely. Percentages of lauric acid-containing stocks would have to be reduced if no substitute for coconut oil could be found—a move that would be to the detriment of the industry as a whole.

To what extent, then, could the American soaper hope for a solution to this problem in the oil of the babassu nut?

There is to be sure, an enormous potential supply of babassu nuts within the boundaries of Brazil. In two of the 20 states of the country alone it is estimated that there are stands of over a billion babassu palms (*Attalea Funifera*). According to generally accepted figures, the average tree will yield from 2 to 8 bunches, each containing from 200 to 400 nuts, and for purposes of commercial exploitation, it is usually estimated that one tree will produce annually from 900 to 1,200 nuts, weighing from 220 to 275 pounds.

The nuts, the largest of which are about the size of a man's fist, consist of four distinct parts, all of which have definite commercial value: the pericarp, the mesocarp, the endocarp and the kernels or "almonds." The pericarp, which is the fibrous outside covering, is used for the manufacture of brushes and matting. The mesocarp, or second covering, contains commercial quantities of tannin and starch, and during periods of drought is used by the natives as a substitute for manioc flour. The endocarp, or main shell, is of extreme hardness, requiring from 10,000 to 25,000 pounds pressure for breaking, and is said to have excellent fuel value. Within the shell are from 1 to 7 kernels, about two inches long, which, by virtue of their heavy oil content are the most valuable part of the babassu nut.*

Upon being crushed, the "almond" yields between 60 per cent and 65 per cent of oil which is almost identical in character with coconut oil as far as soap making is concerned; the oil is also suitable for making lubricants, Diesel fuel, shortening, oleomargarine, etc. When used in soap manufacture, babassu oil produces a soap which is slightly whiter and slightly more brittle, that is, a shorter grained soap, than a soap made with an equal percentage of coconut oil. It is also said to produce a soap which is more easily grained out and is easier to work with in the graining-out process than coconut oil. Soap made from babassu oil has a very slightly different, recognizable odor, but aside from these relatively unimportant differences, babassu behaves very much like coconut oil in the soap kettle. Like coconut oil, it contains about 45 per cent lauric acid.

It might appear from the above figures that the production of more than a billion babassu palms would be an almost limitless source of oil for the American soaper—but figures are sometimes misleading. If one were to accept, *prima facie*, the glowing predictions on the future of the industry which have been made from time to time, one might suppose that the Brazilian babassu kernel was on the verge of becoming a more important commodity on the world market than American lard or East Indian rubber. The astounding "potentialities" of the babassu nut have been emphasized to the skies by some interested parties but the difficulties confronting the industry have been passed over so lightly as to give the impression they hardly exist.

"The nut," says one writer, "has nearly five-fold the value of Brazil's famed coffee crop. Known supplies, if they were fully exploited, represent a potential value of a billion dollars per year, and it has been estimated that they could produce over 8,800,000 tons of oil annually." It might be well to insert here the reminder that the soap industry in the United States uses somewhat less than 1,000,000 tons of *all* oils and fats per year, and the total consumption of oils and fats by all industries in the United States is less than 2,500,000 tons annually. Another set of estimates, which comes directly from the National Institute of Technology, Brazil, puts the capacity production of only one state, the state of Maranhao, at about 5,880,000 tons of babassu oil per year, the yield from 99,000,000 tons of nuts. Even in these days of astronomical figures, such estimates stagger the imagination. But they are conservative in comparison to an estimate made by one Alpheu Diniz Gonsalves who puts the total potential babassu oil production of Brazil at 165 million tons,—over 3,000 times the actual annual production of about 50,000 tons of oil equivalent!

THE most extravagant estimates of those interested in promoting and exploiting the babassu are not accurate—even up to a certain point. The trees and nuts do exist in tremendous quantities in their natural state. The trees are there; the nuts are there; but between the nut in its natural state and its ultimate conversion into materials of commerce lie many barriers.

The almost impassable jungle, the complete lack of real transportation, the absence of sufficient labor, (there really is no labor as we know it) the tropical climate, the rains, the inadequacy of machinery for cracking and processing the nuts, and lack of capital,—these are some of the chief barriers which stand in the way of the industry's development. All these factors combine to make a tougher nut to crack than the refractory shell of the babassu itself.

Consider the locale where most of today's babassu kernels are produced: the states of Maranhao and Pirauhy which together account for almost all of Brazil's production of babassu, Maranhao producing close to 70 per cent and Pirauhy close to 30 per cent of the country's total production. The revenues derived from this industry exert a predominating influence on the economic life of these two states. Some of the other states may have more trees, but the two named have been exploited more than any of the others as far as babassu is concerned.

The states of Maranhao and Pirauhy lie in the northern part of Brazil just below the equator and cover an area larger than the combined areas of Texas, Arkansas and Louisiana. The babassu nut palm grows in abundance over a large portion of the entire region, not in plantations, but scattered here and there in the midst of a dense jungle so densely grown that it is actually impossible to pass through it without hacking out a path foot by foot

*The pericarp, mesocarp and endocarp have never been developed on a commercial scale.

with the aid of machetes. In spite of the imposing stand of babassu palms in the two states indicated, the zones where the nuts are and can be gathered and the kernels extracted profitably are necessarily restricted to those served by suitable river transport and within reasonable proximity of a seaport. The few so-called railways existing in these states do not tap the babassu palm zone to any appreciable extent with the result that the kernels figuring in the export movement are mostly all transported to the coast by rivers or estuaries which penetrate the interiors of the region.

Transportation is only one of the principal problems facing the expansion of the babassu industry. Building a road is a major undertaking in the humid climate of northern Brazil. It is a slow process at best and no sooner is a roadway cleared than the rainy season sets in and in a few short weeks the jungle moves in, completely obliterating the work of many months. More than one fortune has been lost in the battle with the jungle for millions of American dollars have been lured to Brazil by the glowing prospects of the future of babassu and each time the enterprises have failed. A Belgian and several French groups also made attempts at various times to exploit the babassu on a large scale but they too were short-lived. Today control of the business is in the hands of a few Brazilian firms which concern themselves strictly with buying and exporting of the kernels which are bought from the natives in the interior and shipped to domestic and foreign markets.

The past failures at large scale exploitation have been in part attributed to lack of competent technical and commercial management, unsuitable location of plant, unsuitable equipment, and inadequate transportation. Without a tremendous increase in available labor, proper production methods and a means of transporting the nuts in large quantities from the interior to the seacoast, the industry cannot be developed to any appreciable extent beyond its present size. It would take literally millions upon millions of dollars to provide effective means of transportation in the area. Roadways and railroads would have to be built and maintained; coaling stations, loading stations, docks would have to be constructed; harbors would have to be improved,—and that is only part of the picture.

LABOR is another of the important problems of the industry. Under the present system, the nuts are gathered by native workers who live in tiny villages sparsely scattered throughout the region. The method followed by the native is to collect a hundred or so of the largest and driest nuts from the ground under the tree and then open them using only the crudest instruments. The natives have little incentive to work, according to persons familiar with the conditions of the babassu zones, and will only collect and break the nuts when there is no other means of livelihood available. Their needs are simple, the work is difficult and the monetary gain is small. The amount of work they do depends a great deal on the price they get for their produce. When the demand is light and the price of the kernels is low, they turn their efforts to more attractive forms of employment.

Moreover, the climatic conditions are scarcely conducive to hard work. The *average* temperature of the region is about 80°F. and the rainfall averages almost 80 inches per year, most of which falls during the rainy season. Also the relative humidity in these zones runs between 80 per cent and 85 per cent—conditions which make it impossible for any human beings except those who are native to the climate to do any productive labor whatsoever. As the population of the region is small, the largest and only city of Maranhao, Sao Luiz, having only about 60,000 people, laborers from other states would have to be imported by the thousands for the full exploitation of the babassu industry.

The babassu nut is one of the hardest nuts of commerce and is one of the most difficult to open so the oil-bearing kernels may be separated from the husk. Therein lies one of the greatest handicaps to the development of the industry. Although twenty or so machines have been invented for the purpose of cracking the nuts, none has been entirely practical from a commercial point of view, it is said. Consequently practically all of the nuts are still opened in the crude, ancient manner of the natives—by placing a nut on the blade of an axe and repeatedly banging it with a stick of wood until it opens.

When the nuts are opened by this method, or even when they are cracked with the aid of machinery, a large percentage of the kernels are bruised or broken. When this occurs, rancidity develops rapidly in the hot climate, and the free fatty acid content of the oil increases appreciably. Defects of the machines which have been put on the market to date are that their output is too small and none has given a sufficiently high recovery of undamaged kernels to warrant its universal adoption. Until a really efficient breaking machine with a high output is developed, it is said to be unlikely that any marked progress will be made in the industry. The importance of efficient breaking of nuts is apparent when it is considered that a broken or damaged kernel becomes rancid within 48 to 60 hours after coming out of the nut. Tests have shown that rancidity in oils pressed from broken kernels runs as high as 7.5 per cent, whereas oil extracted from whole kernels seldom exceeds 2 per cent rancidity.

Until recently, Brazil exported to the United States only the kernels of the babassu rather than the extracted oil, as facilities for crushing the kernels did not exist on a large enough scale and besides it was found that the oil deteriorated in quality during transportation more than the kernels themselves. However, there is a small production

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PALMAROSA OIL

A survey of the production, markets, and important characteristics of palmarosa and gingergrass oils

PART II

By Dr. Ernest Guenther

Fritzsche Brothers, Inc.

Java Palmarosa Oil

A FEW years ago Java, too, started to produce oil of palmarosa. *Andropogon Martini* Roxb. var. *motia* (syn. *Cymbopogon Martini* Stapf. var. *motia*); in other words, the *motia* variety or true palmarosa. Originally the quantities were very small but in 1937 Java exported 2,755 kilos, mainly to Holland and England, while 1938 showed 4,721 kilos which figures are probably on the increase.

The Java palmarosa oil is distilled exclusively from planted and cultivated grass. So far, there exist five producers, all European planters, the most important one distilling from 1000 to 2000 kilos yearly in Padalarang, near Bandoeng, and another one somewhat smaller quantities in Modjo-Agoeng near Sourabaya, eastern Java.

The grass which was originally introduced from British East India, is propagated by plant dividing, the replanting being done during the rainy season. The plants are set out 80 cm. x 80 cm. distant; after three months they stand about 2.25 meters high and are ready for cutting which is done with scissors. Thus, there is a harvest every three months, but after five years the planting must be renewed. As said before, all present plantations are in the hands of European producers, the many native and Chinese growers not yet having started with palmarosa. All plantings are, therefore, properly taken care of, carefully weeded out and in excellent condition. This might be one of the reasons for the high quality of the Java oil.

Distillation, too, is carried out according to modern methods. The above mentioned producer in Padalarang, for instance, employs direct steam stills of about 5 cbm. capacity. Distilling one charge of 600 kilos of grass with live steam for three hours, he obtains about 1 kilo of oil. The oil yield, therefore, varies around 0.17 per cent.

According to C. J. van Hülsen and D. R. Koolhaas[17] of the Government Experimental Station in Buitenzorg, Java, distillation with indirect steam and cohobation of the distillation waters also gives a very good quality of palmarosa oil.

Quality of Java Palmarosa

It might be interesting in this connection to submit the quality of the Java oil to a critical examination. Compared with the East Indian palmarosa oil, the Java product should be better because:

1. In Java all palmarosa grass originates from well kept plantings of exclusively *Cymbopogon Martini* Stapf. var. *motia*, while in British East India the plant material consists of wild-growing grass, very often mixed with the inferior *sofia* variety or gingergrass.

2. Distillation in Java, as mentioned above, is carried out in modern steam stills by large scale producers, while in British East India the oils are distilled by natives in primitive, direct fire stills with insufficient condensation. The oils are frequently not properly stored and for weeks and months, sometimes, exposed to the high temperature of Central India.

3. In Java every single lot of oil must be analyzed, previous to the granting of an export license, in the Government Analytical Laboratories of Buitenzorg; inferior oils are rejected.

From all these factors, it would appear that the Java oil should be superior unless, of course, the plant itself, after its introduction from British East India, degenerated under the climatic and soil conditions of Java, or under cultivation.

In fact, the difference between the East Indian and the Java palmarosa oil is quite pronounced. Whether it is due to the superior methods of production employed in Java or to a mutation of the plant under its new environment is open to debate. When, in 1937, commercial shipments of Java oil reached Europe, the consumers abroad, much to the dismay of the Buitenzorg Experimental Station, rejected the oil as different, at least unsuitable for the purpose, if not really inferior. But such judgment is often encountered in our industry when a new type of

[17] Loc. cit.

Native apparatus for distillation of palmarosa oil is about the crudest and most primitive employed in essential oil production. The still is little more than a big copper kettle.

oil is introduced in replacement of a well known one, to which the trade had become accustomed through many years of use.

It is the writer's opinion that the Java oil represents a very high grade of palmarosa oil. It has a suave, slightly fruity, quite rose-like character which lends itself very well to use in perfumes, cosmetics in general and, because of the high geraniol content, perhaps also for the manufacture of geraniol. Its odor tends toward geranium. The East Indian oil is somewhat harsher; it has a slightly burned by-note which, because of its strength, recommends the oil for the scenting of soaps. We believe that there is a place for both oils and that they should be marketed under separate labels, as in the case of geranium oil Algerian and Réunion, for instance, or vetiver oil Réunion and Java, or patchouly oil Singapore and Sumatra, etc.

Physical and Chemical Constants

According to a private communication from D. R. Koolhaas, the constants of Java palmarosa oil vary between the following limits:

Specific Gravity at 15° C.—0.886 to 0.899
Optional Rotation: —3° to +5°
Refraction Index at 20° C.—1.4720 to 1.4780
Acid Value—0 to 3
Ester Value—12 to 50
Total Geraniol: 78% to 94%
Aldehydes as $C_{10}H_{18}O$ *(Hydroxylamine Method)*—0 to 10%
Solubility in 70% *Alcohol*—One volume is soluble in 1½ to 10 volumes.

Our own shipments varied between the following limits:

Specific Gravity at 15° C.—0.888 to 0.894
Optical Rotation: —0°6′ to +0°18′
Refractive Index at 20° C.—1.4729 to 1.4748
Acid Value: 1.4 to 2.8
Ester Content Calculated as Geranyl Acetate—9.5% to 17.6%
Total Geraniol Content—85.7% to 90.2%
Content of Aldehydes Calculated as Citronellal (Hydroxylamine Method)—1.2% to 10.8%
Solubility at 20° C.—Sometimes soluble in 3.5 volumes of 60% alcohol. Usually soluble in 2 volumes of 70% alcohol, opalescent in 4.5 volumes and more.

These limits may be somewhat too narrow because commercial lots have been available only during the last few years.

Chemical Constitution

The main constituent of Java palmarosa oil is *geraniol* which occurs in the oil partly free, partly esterified with *acetic* and *n-caproic* acid. The main difference between the East Indian and the Java oil lies in the higher ester content of the latter. The lower ester content of the East Indian oil is probably the result of the primitive distillation methods employed, the contact of boiling water with the grass in the direct fire stills perhaps causing partial saponification of the esters.

C. J. van Hülsen and D. R. Koolhaas submitted several samples of Java oil to a closer examination especially in regard to their aldehydes. Aside from a very small percentage of *dipentene* and probably l-*limonene*, they established in two samples (total aldehyde content 0.7 per cent and 0.9 per cent by the hydroxylamine method) the presence of *citral*, small quantities of *formaldehyde* and *isovaleric aldehyde*. The two Java samples resembled in this respect the East Indian type.

However, in one sample of Java oil (total aldehyde 9.3 per cent) the same authors could not find any citral and only traces of fatty aldehydes. Instead, they identified *citronellal*. Since no citronella grass grew on the plantation from which this palmarosa oil sample originated, the authors came to the conclusion that the citronellal-containing oils probably originate from a special cultural type of *Andropogon Martini* Roxb. var. *motia*. Such oils, of course, are quite different from the East Indian palmarosa oil in which,

according to literature, citronellal does not seem to occur.

Adulteration

The careful examination by the Buitenzorg Government Laboratories to which each shipment of Java palmarosa oil is subjected prevents the export of adulterated oils. Any sophistication would, therefore, have to be carried out in Europe or America, probably with fractions of citronella oil, especially geraniol fractions and resulting by-products.

Oil of Gingergrass

THIS oil is distilled in British East India from the wild-growing grass, *Cymbopogon Martini* Stapf. var. *sofia* (syn. *Andropogon Martini* Roxb. var. *sofia*). The producing regions are in parts of Bengal and Punjab, and especially in the presidency of Madras. In fact, the oil originating from Madras consists entirely of gingergrass and not partly of palmarosa oil. Harvesting of the plants, distilling and handling of gingergrass oil takes place under conditions almost identical to those prevailing for palmarosa oil.

The bulk of the oil is shipped to ports of the Red Sea and to the Sudan where it is used as cheap perfume for the native colored population. In East Africa the oil is furthermore employed in conjunction with sandalwood oil as a preventive ointment against mosquito bites, and it is said to be rather effective. When applied alone, the oil is usually too drying and therefore it is incorporated into a base of fatty oils. Gingergrass oil is also supposed to give good results as a remedy for stiff joints, lumbago and so forth.

The export figures for gingergrass oil read as follows:[18]

1934	63,529 lb.
1935	56,290 lb.
1936	60,250 lb.
1937	26,369 lb.
1938	61,445 lb.

Of the latter quantity, 1,991 pounds were shipped to Europe while 59,454 pounds went to Red Sea ports.

Physical and Chemical Constants

According to Gildemeister and Hoffmann,[19] the constants for gingergrass oil vary between the following limits:

Specific Gravity at 15° C—0.900 to 0.953

Optical Rotation: +54° to —30°

Refractive Index at 20° C.—1.4780 to 1.4930

Acid Value—Up to 6.2

Ester Value—8 to 29; in one case 54.5

Ester Value after Acetylation—120 to 200

Solubility—Mostly soluble in 2 to 3 volumes of 70% alcohol, opalescent to turbid with more alcohol. Soluble in 0.5 to 1.5 volumes of 80% alcohol and more, in rare cases with slight opalescence.

Chemical Constitution

H. Walbaum and O. Hüthig[20] established the presence of the following constituents:

d-α-phellandrene
dipentene
d-limonene
0.2% of an aldehyde with an odor resembling heptyl aldehyde and citronellal.
dl-carvone
geraniol, the main constituent
dihydro cuminic alcohol, the odor of which reminds of linalool and terpineol and which, according to F. W. Semmler and B. Zaar[21], is identical with perilla alcohol, as made from perilla aldehyde.

Adulteration

Gingergrass oil is frequently adulterated by the native producers, especially with oil of turpentine, coconut oil and kerosene which can be identified by the methods described under East Indian palmarosa oil.

[18] Bericht von Schimmel & Co., 1939, 36.

[19] Die Atherischen Ole, 3d Ed., II, 300.

[20] Bericht von Schimmel & Co., April 1904, 52; Oct. 1904, 41; April 1905, 34. Walbaum & Hüthig, Journ. f. prakt. Chem. II, 71 (1905), 459.

[21] Ber. deutsch Chem. Ges. 44 (1911), 460.

The writer is greatly obliged to Dr. Koolhaas for all the help and hospitality extended during his stay in Java.

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What Future for Babassu?

(*Continued from Page* 27)

of babassu oil in Brazil, and a few odd parcels have been shipped to the United States of America. The quality has been poor and the quantity involved of no consequence in the oils and fats picture as a whole. The principal mill in Sao Luiz has not been operated for months.

It is difficult to predict just how much the babassu industry will be able to expand in time. It seems fairly certain, however, that *under the present conditions*, the problems retarding the progress of the industry are certainly great enough to prevent its development very much beyond its present extent.

Consequently, it is highly doubtful that the Brazilian babassu industry would be able to step into the breach should coconut oil supplies become increasingly difficult to obtain. Even if sufficient capital were made available to provide transportation in the babassu zones, production could not be stepped up instantly, for it would take many years of continuous effort and even then the success of the enterprise would not be assured by any means. Some authorities familiar with the problems involved are of the opinion that the babassu industry will never be developed much further and have placed the limit of production at only 20,000 tons a year above the present rate of production. Whether the future will bring an annual yield of 7,000,000 tons of oil equivalent or 70,000 tons can not be predicted with accuracy—but after examining the difficulties involved, the latter view appears the more valid one.

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South Sea Coconut Oil

The yield of oil from copras from the inner and outer islands of the South Seas and the Japanese Mandate was determined and found to vary from 65.74 to 69.26 per cent. The highest saponification number 271.0 was from Celebes oil and the lowest, 255.9, was from Ponapi of the Japanese Mandate. The mixed fatty acids prepared from the South Sea oil by the Twitchell process were distilled and the saturated acid content was calculated from the saponification number and the oleic and linoleic acids from the iodine and thicyanogen values. The percentage of the different fatty acids in the saturated acids was found to be caproic 0.3, caprylic 9.17, capric 9.67, lauric 44.05, myristic 15.86, palmitic 9.58, stearic 3.16 and a small amount of arachidic. The unsaturated acids consisted of oleic 6.28 and linoleic 1.53 per cent. H. Nobori and M. Kawabata. *J. Soc. Chem. Ind., Japan* **43**, Suppl. binding 382-4.

"Coal Oil Johnny"

The Birth and Death of a Soap Brand

ONCE upon a time there was a little brand of soap which overnight became a big brand of soap and it sold like hotcakes and everybody bought a lot of it and it made a lot of money for its manufacturers and the people who sold it. Then, after a few years, nobody wanted it anymore and people forgot about it and their children had never heard of it and hardly anybody bought it and pretty soon it died a natural death and nobody missed it and everybody kept on buying soap, —but some other kind.

And that is the story of "Coal Oil Johnny."

It's not a new story but it is a true story and a very sad one because the same thing has happened to a hundred other brands and it is all very sad. It is sad because people forget so quickly.

"Coal Oil Johnny" was a big seller in its day; one of the biggest soap brands back at the end of the 19th century and the beginning of this one. The soap was made by Frank T. Burke and sold by a man named Marous Jenkins when it first invaded the market.

In the 80's, Frank Burke was in the cattle business in Texas, operating out of Houston. Originally he had come from Cleveland where his father was a wealthy iron merchant. About 1889, he took a trip North and while on the train he fell to talking, as a man will, with a fellow passenger, one W. A. Grant. Grant was the owner of a contraption for making soap, "The Little Giant Soap Machine." Through this chance meeting, he got Burke interested in the possibilities of the "Little Giant." When they arrived at St. Louis, they entered into a transaction and Burke bought the patent (U. S. Patent No. 370,330).

The "Little Giant" was a very compact soap factory in itself. It had

Frank T. Burke, the founder of Manhattan Soap Co. One of his first successes in the soap business was built on "Coal Oil Johnny."

a capacity of about 1,000 pounds and was designed for manufacturing a cold-made coconut oil soap. Burke's scheme was to travel about the country from town to town interviewing the large wholesale grocers. He'd ask them about soap—"did they sell a lot of it?" If they answered "Yes!" he would say, "Why don't you make your own soap and get all the profit?" When he found someone receptive to the idea, he would install a "Little Giant" for $10,000, getting all the cash he could and taking stock for the rest. Ultimately, he would sell his stock to someone in the town and pass on to pastures new.

In this way, he sold an installation at Minneapolis and another one in Memphis. Next he came to New York seeking further sales but found no buyers and hard times. These were the days when push cart men went through the streets seeking grease from the housewives, crying "Soap fat!" with the kids of the neighborhood trailing after shouting "What do you feed your wife on?" timed to meet the answer, "Soap fat!"

Finding no interest in the "Little Giant" on the part of the usual prospects, Burke set up a soap plant on 150th Street in the district of New York then known as Frog Hollow and began operating it himself as F. T. Burke, Inc., trading as Manhattan Soap Co.

Shortly after this, Burke met another individual, Marous Jenkins, who was making a living representing his brother from Pittsburgh, T. C. Jenkins, who operated a large chain of grocery stores. Marous Jenkins was a super-salesman of the first degree—what they called a "crackerjack" in those days. He could sell a lawn-mower to an Eskimo. Soon after they met, Jenkins asked Burke if his soap would lather in hard water. Burke answered emphatically in the affirmative whereupon Jenkins said that if it would, he could sell it as he knew every wholesale grocer this side of the Mississippi. This was agreeable to Burke and at a subsequent meeting the question of a name for the soap was brought up by Burke.

"That is settled," said Jenkins, "we'll call it 'Coal Oil Johnny'." The name, however, did not appeal to Burke and, as Jenkins would not hear of any other, it looked as though the partnership was off. Finally Jenkins suggested, "You make the soap

The "Little Giant Soap Machine" first brought W. A. Grant and Frank Burke together and paved the way for the latter's entry into the soap business. Illustration shows Grant's early letterhead.

and I will sell it, each on his own," to which Burke agreed.

So "Coal Oil Johnny" soap was born.

The original Coal Oil Johnny was an almost legendary character, well known then for the way he had thrown his money around. Born John Washington Steele, he was orphaned at an early age and adopted by an Aunt Sally McClintock who had a farm near Pittsburgh. Oil was discovered on the McClintock property and after Aunt Sally tried to prime a fire with kerosene, Steele became heir to a fair-sized fortune. With so much money in his pockets, he decided to have some fun with it and not lose it in speculations as many other oil men had done. His spendthrift career before he ran through all his wealth grew into a legend in the oil region and "Coal Oil Johnny" became a by-word of the day. One time, so the story goes, Johnny bought a hotel on the impulse, just so he could fire a desk clerk who had insulted him. Another time, in Philadelphia, he and a friend picked out a bolt of material so loud that when they had suits of clothes made out of it they were arrested for frightening horses and disturbing the peace as soon as they appeared in public. On another occasion, he arrived at a hotel where he desired to stay and was informed there was no room left. With no more to do, he bought the place, paying about twice what it was worth, went into the first room he came to and kicked the slumbering occupant on the traditional spot.

"Move over or get out," he said, "I'm the new owner of this place and I want some sleep." Obligingly the man moved over. "That's all right with me," he said, "but take off your boots before you get in; I just took a bath."

Fast women and slow horses used up what money he had left over after buying all the hotels in sight. Finally Johnny lost all his money, although his agents got rich taking care of his property, and he went back to his old job as a teamster. So much for the man after whom "Coal Oil Johnny" soap was named.

JENKINS started in selling the soap, on a direct mail basis. He was a master letter-writer and wrote spectacular letters to his wholesale grocer friends. He often said, "If I can get a man to answer a letter once, I've got him sold." This was not far from the truth. It was not long before business started booming. Jenkins prospered and, as Burke was supplying the soap, he prospered also. Jenkins bought a large farm in New Jersey and became a country gentleman. "Coal Oil Johnny" became one of the largest selling brands of soap of the day and was a great success particularly in the hard water sections of the country.

To be sure, the volume of sales of "Coal Oil Johnny" could not begin to compare with the biggest sellers of the present time, but for that era, its sales were terrific. An entirely different set-up existed in the soap industry before 1900 as compared with now. There was not then the sharp competition among large soap companies operating on a national scale. There were many more popular soap brands and sales were shared more evenly by forty or fifty soap companies each of which operated more or less sectionally. "Coal Oil Johnny" in that market rose in importance to attain a place among the first ten or twenty brands of the day.

The Burke plant, meanwhile, as it was continually expanding, was moved to larger quarters, first to 36th Street and thence to 30th Street and 11th Avenue. During its heyday, in the 90's, the streets in front of the plant were jammed with hogsheads of coconut oil and "Coal Oil Johnny" was being turned out as fast as the plant could operate.

Of course, Frank Burke knew better than to put all his eggs in one basket and he was making and selling a number of his own brands at the same time, although they did not at first compare with "Coal Oil Johnny" in volume of business. Among them were "Black Prince Tar Soap" and "Sweetheart." A certain amount of trouble arose between Jenkins and Burke on account of these other brands. Jenkins wanted to be sole selling agent for them as well as for

"Coal Oil Johnny" but Burke saw no necessity for this as he was doing very well on his own. Out of this disagreement resulted a strain in the relationship between Burke and Jenkins which later culminated in the parting of their ways.

In 1897, W. A. Grant, of "Little Giant" fame, who had started Burke in the soap business, again appeared on the scene. After a law suit which broke up the connection between Jenkins and Burke, Jenkins turned over the making of "Coal Oil Johnny" to Grant. Following the legal fight, Burke began making a competitive soap brand "Coaline," and Grant sent for his soapmaker from Texas, a man named Platt, and began the manufacture of "Coal Oil Johnny" in his barn on Orange Mountain in New Jersey. Burke's business suffered from this deal at first, but with the advent of the Spanish-American war, he hit on the idea of a red, white and blue cake of soap. It became a success overnight and the peddlars flocked to him.

Burke's other brands gradually found larger markets and the business of Manhattan Soap Co. expanded from that time up to the present day. In 1923, the company was incorporated under its present title, the name being changed from F. T. Burke, Inc., to Manhattan Soap Co. The present company with offices on Lexington Avenue at 44th Street is run by the sons of Frank Burke, Frank Jr., and Oscar Burke.

EVENTUALLY Grant decided not to make "Coal Oil Johnny" soap any more and he arranged with a couple of young men, Bell and Bogert, to buy from him the business of making the soap for Jenkins. At this time, James H. Welch, who after thirty years with Welch, Holme & Clark, New York, severed connections with them and went into business with his son, Ambrose, in 1892, was supplying Bell & Bogert with all their chemicals, and coconut oil at the rate of fifty tons a month.

In the meanwhile, Grant had not been sitting by idly but had followed with much interest the success of "Coal Oil Johnny." In time, he persuaded Jenkins to turn the making of his soap to still another firm in which he was interested, but Bell & Bogert were prepared for such a happening and put up a fight. As a result, they continued the manufacture of "Coal Oil Johnny." As Bogert used to say, "It cost us forty thousand dollars and we're busted, but we've still got 'Coal Oil Johnny'."

However, its possession soon began to appear more of a detriment than an asset, for "Coal Oil Johnny" suddenly lost its popularity. Demand for it fell off and the advertised brands with which it was in competition pushed "Coal Oil Johnny" out of the picture. "Coal Oil Johnny" never had been extensively advertised. Merchandising had always been handled by the retailer rather than by the distributor. When Jenkins sold an order of soap to his customers that was as far as he concerned himself. It was up to the retailer to create a demand for it among the consuming public. This localized merchandising, however, could not compete in effectiveness with the campaigns of the nationally advertised brands and "Coal Oil Johnny" fell into limbo.

Bogert had bought out Bell's interest and sought new capital to put "Coal Oil Johnny" back on its feet, but he was unlucky in this decision for the new venture ended up with the appointment of a receiver in bankruptcy. At the receiver's auction sale, the Bogert plant was bought by Welch & Welch. This was in 1914.

Jenkins was left out in the cold. The comfortable income he had enjoyed when "Coal Oil Johnny" was selling dwindled away to nothing. For old times' sake, F. T. Burke hired him to write pep-letters to the salesmen on the road. He was still an amazing letter writer, the like of which is rarely seen, and his letters have since become almost a legend for the verve with which they inspired salesmen to go out and sell orders.

Not long after Welch & Welch had bought the Bogert plant, Bogert came to them and announced that the receiver had on hand orders for a thousand boxes of "Coal Oil Johnny" soap. The Welches answered that it did not concern them, but Bogert replied that not only did they have his plant but his soapmaker as well. John Moore, the soapmaker, had applied to Welch & Welch for a job and he had been put to work in their Brooklyn factory.

As a result of that interview, John Moore was commissioned to install some soap machinery in the Welch warehouse and the manufacture of "Coal Oil Johnny" was commenced again on a fifty-fifty basis with Bogert. What little business there was at this time soon became less and although "Coal Oil Johnny" was manufactured continuously up until 1940, not enough of it was made to put into your eye. During its last declining years, after Ambrose Welch had gone into business for himself, coconut oil for making "Coal Oil Johnny" was purchased a single barrel at a time and often it would be more than a month between purchases. When Ambrose Welch died as a result of a train accident in Orange, New Jersey, last year, the manufacture of "Coal Oil Johnny" was discontinued. Thus died a brand which one day had been among the leading sellers in the country.

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"The Way We Wash Our Clothes" is the title of a new 140-page book by Eleanor Ahern, home economics director of Procter & Gamble Co., Cincinnati, just published by M. Barrows & Co., New York. An expert who has worked with laundry problems for the past twenty years, Miss Ahern, writing for the homemaker, explains how to wash in hard and soft water, what soaps to use, the technique of handling all kinds of fabrics and approved methods of ironing and stain removal. Presented in a manner easily understandable to the average housewife, the book is designed to serve either as a text and reference in home economics classes or for practical guidance in the problems of the family wash. Copies $2.00.

Laundry Soap Standards

FEDERAL SPECIFICATIONS BOARD ASKS INDUSTRY COMMENT ON NEW STANDARDS FOR CHIP AND POWDERED SOAPS . . . NEW SPECS WOULD SUPPLEMENT P-S-566 AND P-S-596

TENTATIVE drafts of proposed new federal specifications for Soap; Chip, Laundry, Ordinary, and Soap; Powdered, Laundry, Ordinary, have just been released by the Technical Committee on Detergents, Federal Specifications Executive Committee, under date of July 21, 1941. F. W. Smither, chairman of the committee, emphasizes that the specifications in their present form are not necessarily final, and advises that they were sent out in their present form to get the comments of soap manufacturers. soap users and other interested parties.

The proposed new specifications are not intended to replace existing federal specifications P-S-566 (Chip Soap) and P-S-596 (Powdered Laundry Soap) but rather with the idea of supplementing them. The new specifications were formulated as a result of the research work carried out in the Naval Stores Research Division of the U. S. Department of Agriculture, with the thought of fostering the use of rosin. They are set up along the general line of P-S-591 (Ordinary Laundry Bar Soap) taking into account the volatile content in order to secure the physical form stated. If finally adopted, government purchasing agents would then have the option of specifying P-S-566, P-S-596, or either of the two new specifications, as the particular cleaning operations to be carried out might indicate.

The National Bureau of Standards is also engaged in extensive revision of a whole list of specifications covering Toilet Soap, Scouring Powder, Soap Powder, Milled Toilet Soap, Liquid Toilet Soap, Salt Water Soap, Hand Detergent, Floating White Soap and other products, to bring the federal specifications into general conformity with the new specifications that have been worked out over the past year or two by Committee D-12 of the American Society for Testing Materials.

Complete drafts of the two new tentative specifications follow:

Proposed Federal Specification for Soap; Powdered, Laundry, Ordinary

A. APPLICABLE SPECIFICATIONS

A-1. The following Federal Specifications of the issue in effect on date of invitation for bids shall, in so far as applicable, form a part of this specification:

P-S-536—Soap and Soap-Products; General Specifications (Methods for Sampling and Testing).

RR-S-366—Sieves; Standard, Testing.

B. TYPE

B-1. Ordinary laundry powdered soap shall be of but one type.

C. MATERIAL

C-1. Ordinary laundry powdered soap shall be as specified hereinafter.

D. GENERAL REQUIREMENTS

D-1. *Soap; Powdered, Laundry, Ordinary.*

D-1a. Ordinary laundry powdered soap shall be a well-made, uniformly mixed soap in powdered form, made from soda and fats, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, shall be of a uniform color, and shall be suitable for use with moderately hard water for general cleaning and laundry purposes.

D-1b. *Odor.*—The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with samples from deliveries. (See paragraphs D-2, F-1 and I-3.)

D-1c. *Volatile Matter.*—Moisture and matter volatile at 105° C. shall not exceed 10 per cent. Deliveries which yield more than 10 per cent of volatile matter will be rejected without further test.

D-2. *Bid Samples.*—When specified, each bidder shall submit with his proposal a sample of the material that he proposes to furnish, to show color, odor, and condition (see paragraphs D-1b, F-1, and I-3). The sample so furnished shall be kept for comparison with samples from deliveries (see paragraph F-1).

E. DETAIL REQUIREMENTS

E-1. The material shall conform to the following detail requirements:

	Maximum	*Minimum*
	Per cent	*Per cent*
Moisture and matter volatile at 105°C.	10.0	—
Sum of free alkali or free acid, total matter insoluble in alcohol, and sodium chloride	14.0	—
Free alkali, calculated as sodium hydroxide (NaOH)	0.5	—
Free acid, calculated as oleic acid	0.5	—
Matter insoluble in water	1.0	—
Chloride, calculated as sodium chloride (NaCl)	1.0	—
Rosin	20.0	—
Anhydrous soap	—	75.0
Residue retained on a No. 12 sieve	2.0	—

E-2. *Computation.*—The percentage of moisture and volatile matter shall be computed, and reported by the testing laboratory, on the soap as received. The percentages of all other constituents shall be calculated and reported on an assumed moisture and volatile matter content of 10 per cent. For basis of purchase, see paragraph I-1.

F. METHODS OF SAMPLING, INSPECTION, AND TESTS

F-1. The inspector or purchasing officer shall determine whether or not the material is satisfactory as regards odor, color, and condition. If unsatisfactory the material should be rejected and not submitted to the testing laboratory for the tests referred to under Section F-2. (See paragraphs D-1b, D-2 and I-3.)

F-2. Deliveries will be sampled and tested according to the methods contained in Section F of Federal Specification P-S-536.

G. PACKAGING, PACKING AND MARKING FOR SHIPMENT

G-1. *Packaging.*—Unless otherwise specified, commercial packages are acceptable under this specification.

G-2. *Packing.* — Unless otherwise specified, the subject commodity shall be delivered in standard commercial containers, so constructed as to insure acceptance by common or other carriers, for safe transportation, at the lowest rate, to the point of delivery.

G-3. *Marking.* — Unless otherwise specified, shipping containers shall be marked with the name of the material, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS

H-1. The following Departmental specifications of the issue in effect on date of invitation for bids shall form a part of this specification.

H-1a. *Army:* U. S. Army Specification No. 100-2, Standard Specification for Marking Shipments.

H-1b. *Navy:* Navy Department General Specifications for Inspection of Material (copies of which may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.)

H-1c. *Marine Corps:* Instructions issued by the Quartermaster.

I. NOTES

I-1. *Basis of Purchase.*—The material should be purchased by net weight, provided the moisture and matter volatile at 105° C. does not exceed 8 per cent. With deliveries containing more than 8 per cent but not exceeding 10 per cent of moisture and matter volatile at 105° C., settlement should be made on the basis of 8 per cent of moisture and matter volatile at 105° C.; that is, 0.92 lb. of nonvolatile matter should be considered 1 lb. of soap. For example: Moisture and matter volatile at 105° C. = 9 per cent, then:

Net weight of material to be paid for

$$= \frac{\text{Net weight as received} \times (100-9)}{92}$$

I-2. Bidder should state size and weight of his unit.

I-3. Purchasers should specify if a mutually agreed upon sample is desired for comparison with deliveries for odor, color, and condition. (See paragraphs D-1b, D-2, F-1, and I-4.)

I-4. It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid samples should be definitely stated, the specification to apply in all other respects.

I-5. This specification covers only the types, classes, grades, sizes, etc., of the commodity as generally purchased by the Federal Government, and is not intended to include all of the types, etc., which are commercially available.

I-6. An Index of Federal Specifications may be purchased as noted in the paragraph next below, price to be obtained from the Superintendent of Documents.

I-7. Copies of this specification, P-S-536, Soap and Soap Products; General Specifications (Methods for Sampling and Testing), and RR-S-366, Sieves; Standard, Testing, may be obtained upon application, accompanied by money order or coupon, or cash, to Superintendent of Documents, Government Printing Office, Washington, D. C., price 5 cents each.

Notice: When Government drawings, specifications, or other data are used for any Government procurement operation, the United States Government thereby incurs no responsibility or any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Proposed Federal Specification for Soap; Chip, Laundry, Ordinary

A. APPLICABLE SPECIFICATION

A-1. The following Federal Specification of the issue in effect on date of invitation for bids shall, in so far as applicable, form a part of this specification:

P-S-536—Soap and Soap-Products; General Specifications (Methods for Sampling and Testing).

B. TYPE

B-1. Ordinary laundry chip soap shall be of but one type.

C. MATERIAL

C-1. Ordinary laundry chip soap shall be as specified hereinafter.

D. GENERAL REQUIREMENTS

D-1. *Soap; Chip, Laundry, Ordinary.*

D-1a. Ordinary laundry chip soap shall be a well-made, uniformly mixed soap in chip form, made from soda and fats, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, shall be of a uniform color, and shall be suitable for use with moderately hard water for general cleaning and laundry purposes.

D-1b. *Odor.*—The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with samples from deliveries. (See paragraphs D-2, F-1 and I-3.)

D-1c. *Volatile Matter.* — Moisture and matter volatile at 105° C. shall not exceed 15 per cent. Deliveries which yield more than 15 per cent of volatile matter will be rejected without further test.

D-2. *Bid Samples.*—When specified, each bidder shall submit with his proposal a sample of the material that he proposes to furnish, to show color, odor, and condition (see paragraphs D-1b, F-1 and I-3). The sample so furnished shall be kept for comparison with samples from deliveries (see paragraph F-1).

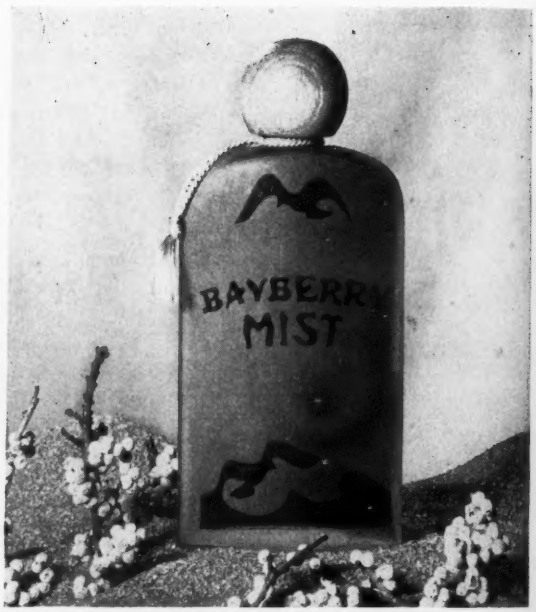
E. DETAIL REQIREMENTS

E-1. The material shall conform to the following detail requirements:

(*Turn To Page* 74)

New Products and

The liquid bubble bath marketed by John Bradshaw Co., Boston, carries its own dispensing cup suspended from a hook. Generous use of wood, as here in base, cap and cup, features the entire Bradshaw toiletries line.



Personal Appearance Products, Provincetown, Mass., have recently introduced a new cologne under the name "Bayberry Mist." Design by Thomas G. Blakeman. Container, Etchall, Inc.

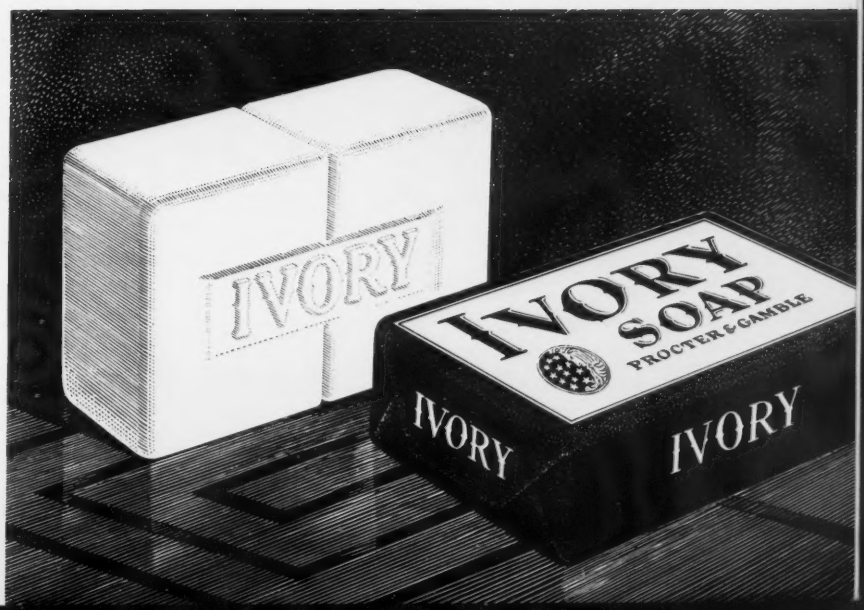
Luxor, Ltd., Chicago, has just added "Rosebud Soap" to the American Beauty Line. Four bars of soap fashioned into full-blooming roses and packed in a rose-bedecked box, make an attractive package. Container by Ritchie, Chicago.

Packages

A wide-based bottle serves as the container for "Spray Brite" window cleaner, product of Spray Brite Co., Minneapolis. A green and silver metal cap, by Armstrong, harmonizes with the green colored cleaning fluid.

Effective use of store displays has been made by Theobald Industries, Inc., Kearny, N. J., in introducing their new "Mercury" granulated household soap. "Trade and Travel" premiums are packed in each box.

Not only the package, but the cake itself has been restyled in Procter & Gamble's newly announced "Velvet Suds" Ivory. The new wrapper goes sensibly modern, abandoning the curlicues which featured the design for the old "Ivory" wrapper.



NEWS....

Merge Radium Co. and Palmo

Radium Products Co., paste and liquid hand soaps, Phoenix, N. Y., and Palmo Products Co., Hartford, Conn., and Miami, Fla., recently have consolidated and are continuing under the name of the former. Palmo Products Co. was formerly known as Favorite Products Co.

Win Shulton Display Contest

In the third annual "Early American Old Spice" Father's Day window display contest, sponsored by Shulton, Inc., New York, department store entries were 50 per cent greater than last year. In this classification, prizes were won by the following stores: May Co., Los Angeles; J. P. Allen Co., Atlanta; Union Co., Columbus, O.; and N. Adam & Co., Buffalo. Among drug stores, prize winners were: Interurban Pharmacy, Inc., Houston; John S. Watkins, Kansas City, Mo.; and Trenot Pharmacy, Rockford, Ill. Every store participating in the contest received a $5 retail credit on the company's line of toiletries as an entry award. Miss Irma Ericsson, advertising manager of Shulton, was contest manager.

Soaper on AATCC Committee

Henry Gaede, of Laurel Soap Manufacturing Co., Charlotte, N. C., has been named member of the general committee for the annual convention of the American Association of Textile Chemists and Colorists which will be held Oct. 31 and Nov. 1 at the Carolina in Pinehurst, N. C.

J. B. Ford Transfers Minor

Lee H. Minor, for ten years a Wyandotte service representative, was recently added to the staff of the technical service department of J. B. Ford Sales Co., Wyandotte, Mich. A graduate of the University of Illinois, Mr. Minor did graduate work in bacteriology there and at the University of Chicago and Iowa State College. He was on the faculty of S. Dakota State College for three years.

LEE H. MINOR

$600,000 "Ivory" Ad Budget

A budget of $600,000 has been appropriated by Procter & Gamble Co. for the new "Ivory" soap advertising campaign which will run in 125 newspapers covering all important markets in the United States, it has been reported. Advertisements of 600 lines and up will be inserted at least weekly and will continue through the Fall.

Grocers Share in C-P-P Prizes

Grocers or store managers who sold "Palmolive" soap to the 181 winning contestants in the recently concluded $27,500 slogan contest also carried away prizes. Each received a cash award amounting to 10 per cent of the prizes paid by Colgate - Palmolive - Peet Co. to the lucky customers.

Lever Man Named to OPM Post

R. H. Webb-Peploe, Lever Brothers Co., Cambridge, Mass., has just been appointed assistant chief of the bureau of clearance of defense industry advisory committees in the Office of Production Management. He is on temporary leave from his company.

Tell Wrisley Success Story

"Rapidly Rising Wrisleys" is the caption of an article in the July issue of the University of Illinois *Alumni News*, which sketches the careers of George A. Wrisley and his brother, L. Norton Wrisley, executives of the Allen B. Wrisley Distributing Co., Chicago soap manufacturers. Both are University of Illinois graduates, George receiving a degree in chemical engineering in 1916 while Norton finished in the College of Commerce in 1923. Both entered the firm after graduation and today George is vice-president and general manager while Norton is in the sales and advertising department. Three other brothers, Allen, Willis and Harold, are also active in the company.

Abandon Olive Ad Theme

The olive oil content of its soaps has been abandoned as an advertising theme by Colgate-Palmolive-Peet Co., comments *Tide* in its July 1 issue. Dwindling olive oil stocks present the obvious explanation.

Bon Ami Earnings Down

Bon Ami Co., New York, and subsidiaries recently reported a net profit for the six months ended June 30, 1941, of $641,025 as compared with $681,726 for the comparable 1940 period.

T.G.A. Sets Up Exchange Bureau

An exchange bureau for essential oils and other materials has just been established by the Toilet Goods Association, New York, to provide a central clearing house where there will be listed stocks of materials in the hands of member manufacturers over and above their requirements. Object of this registration is the exchange of such stocks for other materials of which the manufacturer may be short. Setting up of such a bureau was voted at the recent convention of the association.

P & G Declares Regular Dividend

Procter & Gamble Co. has declared the regular quarterly dividend of 50 cents a share on common stock, bringing total payments so far in 1941 to $2.50. Payment is due August 15, to stockholders of record July 25. Two extra dividends of 50 cents each, in addition to the regular quarterly payments, were paid earlier in the year.

Stops Rubenstein Claims

Helena Rubenstein, Inc., New York, was recently ordered by the Federal Trade Commission to stop certain representations in the sale of cosmetic preparations, among them "Egg Complexion Soap." Claims made for the product, the FTC found, stated "purifies the skin. Made of eggs and soothing oils." The company was ordered to cease representing that the egg content of "Egg Complexion Soap" has any beneficial effect on the skin or that the soap purifies the skin in addition to cleaning its surface.

Knight, Ltd., Appoints Sterne

E. J. Sterne was recently appointed a director of John Knight, Ltd., Silvertown, England, soap manufacturer, to fill a vacancy caused by the resignation of F. Fox.

Hershey Soaps In 29 States

The soap products of Hershey Estates, Hershey, Pa., first put on the market three years ago, are now being distributed in twenty-nine states in addition to the District of Columbia, according to an article in the July 5 issue of *Hotel Hershey High-Lights*. The Hershey soap products, of which there are seven, are all said to be made with cocoa butter.

P & G Workers' Annual Outing

Employees of Procter & Gamble planned to celebrate their semi-annual Dividend Day on August 2, with a family picnic and an athletic program at Coney Island, a majority making the trip by river on the *Island Queen*. Track and water contests were on the morning program, while for the afternoon a ball game was to be played between teams from the Ivorydale and St. Bernard plants. On the committee of arrangements were C. J. Fahnle, J. Robinson, W. W. Blaesi, T. H. Thompson and T. S. Eagan.

CPP Workers Get Paid Holidays

Wage earners at the Jersey City plant of Colgate-Palmolive-Peet Co. recently were granted five holidays a year with pay as a result of bargaining between company officials and representatives of the employee group. Holidays covered by the new regulation are Independence Day, Labor Day, Thanksgiving, Christmas and New Year's Day.

Fine British Soap Profiteer

Joseph Burton & Sons, Ltd., Nottingham, England, were recently prosecuted by the British Board of Trade for selling a bar of soap for three and one-half pence instead of the permitted charge of three pence. A fine of £50 ($200) was imposed. All retailers found to be overcharging customers for price-controlled commodities are being prosecuted by the board.

M. Werk Official Dies

P. J. Kolodzik, assistant secretary-treasurer of M. Werk Co., St. Bernard, died last month. He had been with the company for 12 years and was 34 years old. Surviving are his widow, Mrs. Katherine Kolodzik, and a five-year-old son.

Daggett & Ramsdall Mgr. Dies

Griswold T. Daggett, manager of Daggett & Ramsdall, New York, toilet preparations, died July 20 in Flushing Hospital, Queens, after a month's illness. He was forty-six years old. He lived at Manhassett, L. I. He was born in Richmond Hill, Queens, attended St. Paul's School, Garden City, L. I., and soon after leaving school, began working at D. & R. which was founded by his father, V. C. Daggett, now retired. He was a member of the Foragers of America. Surviving, besides his father, are his wife, a daughter and a stepson.

Cooper Becomes Baronet

Francis D'Arcy Cooper, chairman of Lever Brothers & Unilever, Ltd., London, England, recently had the honor of baronetcy conferred on him by King George. Mr. Cooper received the title in recognition of his work as chairman of the Executive Committee of the British Export Council.

Name Smelser to Ad Post

D. P. Smelser, manager of market research of Procter & Gamble Co., Cincinnati, has been named a member of a new technical committee which will act in an advisory capacity on technical research matters concerning the various projects of the Advertising Research Foundation. The foundation is jointly operated by the American Association of Advertising Agencies and the Association of National Advertisers, Inc., New York.

Am. Cyan. Moves N. C. Plant

A new building in Charlotte, N. C., was recently jointly occupied by the local branches of Calco Chemical division and American Cyanamid & Chemical Corp., of Bound Brook, N. J., and New York. The new structure houses the offices, laboratories and warehouses of the two chemical organizations which were formerly in two different locations in Charlotte. In all, the building provides 8,600 square feet of space.

Davies-Young Gives Co. Dinner

The factory and office employees of Davies-Young Soap Co., Dayton, were guests of the company at a dinner held recently at the Van Cleve Hotel, Dayton. William Bell of the factory board of the company presided. He introduced Wilbur Keeton, who spoke of his experiences in the soap business and of the improvements that have taken place in products, processes and working conditions. Following this talk, Gilbert Emmons told of the safety program instituted by the factory board. The meeting was then turned over to R. H. Young, president of the company who explained the functions and accomplishments of the factory board. Climax of the evening was the presentation of diamond service pins to C. F. Young and three other members of the organization who had served more than fifty years with Davies-Young Co. Service pins were then presented to all employees who had been with the company for one year or longer.

Kutol Products Expand Plant

General Manager C. McVicker, Kutol Products Co., Norwood, Ohio, makers of soaps and cleansers, announces building of an extension to its one-floor daylight plant, giving an increase of 20,000 square feet in manufacturing facilities, also additional track to provide 4-car side trackage.

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Extend Cameo Cleanser Sale

Cameo Corp., Chicago, manufacturers of Cameo cleanser for household use, is planning to extend distribution in middle western and eastern territory and has obtained the services of a Detroit advertising agency to handle the newspaper campaign in selected cities. Radio will be added later as distribution is completed.

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RFC Soap Loans Total $130,407

Authorizations totaling $155,714.57 were made to 11 manufacturing enterprises in the soap and glycerin industry and $130,407.71 was disbursed by the Reconstruction Finance Corp. from Feb. 2, 1932 to Dec. 31, 1940, inclusive, according to an RFC report recently submitted to Congress. The figures do not include loans to business enterprises in connection with national defense, which are reported separately.

Lever Samples "Swan" in Chi.

Lever Bros. Co., Cambridge, Mass., distributed free full-size sample cakes of their new Swan toilet soap from door to door in Chicago last month. With each sample was a coupon offering another regular-size cake of Swan free with each purchase of one large-size cake.

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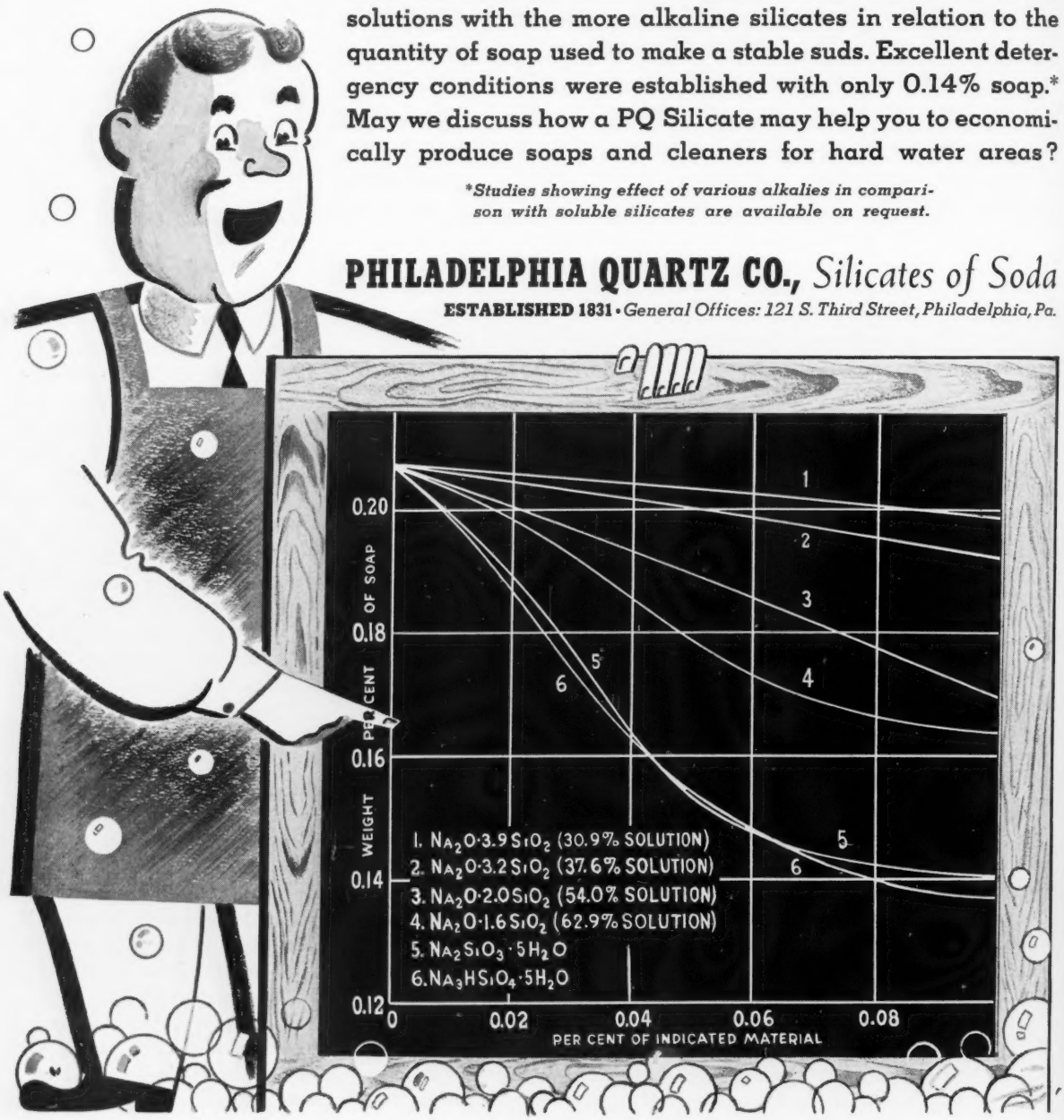
A.S.T.M. Studies Container Tests

The American Society for Testing Materials is reported planning to develop a set of standard procedures for making tests on shipping containers. "Committee D-10," which has been inactive for a year, is to be re-organized and enlarged to include consumers who can advise the technical staff of their needs when setting up the testing methods. Edward Dahill, chairman of Committee D-10, in reporting on the plans at the A.S.T.M. convention in Chicago, June 23-27, said tests will be developed to cover the container as a whole and others covering materials and accessories used in the construction and packing of shipping containers, other than paper and paper products, which another committee is handling.

ECONOMICAL HARD WATER DETERGENTS.

There's real profit for you in building hard water soaps and cleaners with PQ Silicates. First of all, you save fatty acids and secondly, you produce soaps and cleaners that make permanent suds without sticky scum. • In water containing 300 ppm of calcium carbonate equivalent one third of which was present as magnesium salt, we accurately measured how much soap (sodium stearate) was needed to produce suds that lasted five minutes at a temperature of 140°F. • The results are plotted on the chart below. Without silicate of soda, 0.207% soap was needed. But notice particularly the curves of the solutions with the more alkaline silicates in relation to the quantity of soap used to make a stable suds. Excellent detergency conditions were established with only 0.14% soap.* May we discuss how a PQ Silicate may help you to economically produce soaps and cleaners for hard water areas?

**Studies showing effect of various alkalies in comparison with soluble silicates are available on request.*



PHILADELPHIA QUARTZ CO., *Silicates of Soda*

ESTABLISHED 1831 • *General Offices: 121 S. Third Street, Philadelphia, Pa.*

A.H.A. Approves "Super-Mafos"

"Super-Mafos" recently developed dishwashing briquet of Mathieson Alkali Works, Inc., New York, was approved in a report recently issued by the laboratory of the American Hotel Association. According to the A.H.A. report, the use of a dishwashing compound in the form of hard briquets simplifies the problem of keeping wash water of uniform strength. Mathieson has recently brought out an improved model of its automatic feeding device in which the briquets are used. According to the manufacturer, the new feeding system makes it possible to maintain the strength of the wash water at the proper point at all times.

1st Grandchild for Dr. Kunz

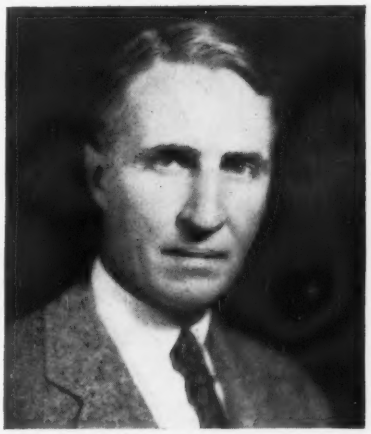
A baby girl was born, July 7, in the Mountainside Hospital, Montclair, N. J., to Mrs. George Cadgene, daughter of Dr. Eric Kunz of Givaudan-Delawanna, Inc., New York. This happy event entitles Dr. Kunz to his membership card in the Benevolent and Protective Order of Grandfathers, this being his first grandchild.

FTC Dismisses Complaint

The Federal Trade Commission recently dismissed without prejudice a complaint which had charged Lightfoot Schultz Co., New York, Continental Blade Corp., and Lawrence Distributing Corp., Brooklyn, with violation of the FTC Act in the sale of soap.

Niagara Elects J. C. Cassidy

J. Clarke Cassidy, for many years works manager of Niagara Alkali Co. and Electro Bleaching Gas Co., Niagara Falls, N. Y., has just been elected president of Niagara Alkali Co., which now includes Electro Bleaching Gas Co. At the same time, E. D. Kingsley was elected chairman of the board. S. W. Jacobs and S. J. White continue as vice-presidents. Before joining Niagara in 1920, Mr. Cassidy had several years of experience in the engineering and operating departments of Aetna Explosives Co. and Calco Chemical division of American Cyanamid & Chemical Co. While serving as works manager, he was instrumental in bringing about many of the pioneering steps taken by the company in producing caustic soda, caustic potash, carbonate of potash, paradichlorobenzene, and liquid chlorine, and in adapting these products to new uses. He is a graduate of Columbia University with the degree of civil engineer.



J. CLARKE CASSIDY

End "Imported" Claims

Steve Stuart, Elkhart, Ind., perfume oils, recently entered into a stipulation with the Federal Trade Commission in which he agreed to stop using the word "Imported" in describing products not of foreign origin, or referring to products as "Flower Oils" when they had not been compounded from the true oils of flowers or of the named flower.

Boston BIMS To Golf Aug. 7

The second golf tournament of the BIMS of Boston will be held August 7th at the Winchester (Mass.) Country Club. Roy Schaberg, newly-elected committee member is to be host at the outing. Also just elected to the BIMS general committee is Ernest Ingham, it has been announced by Robert C. Kelly, chairman.

Sayman Offers Silk Hose

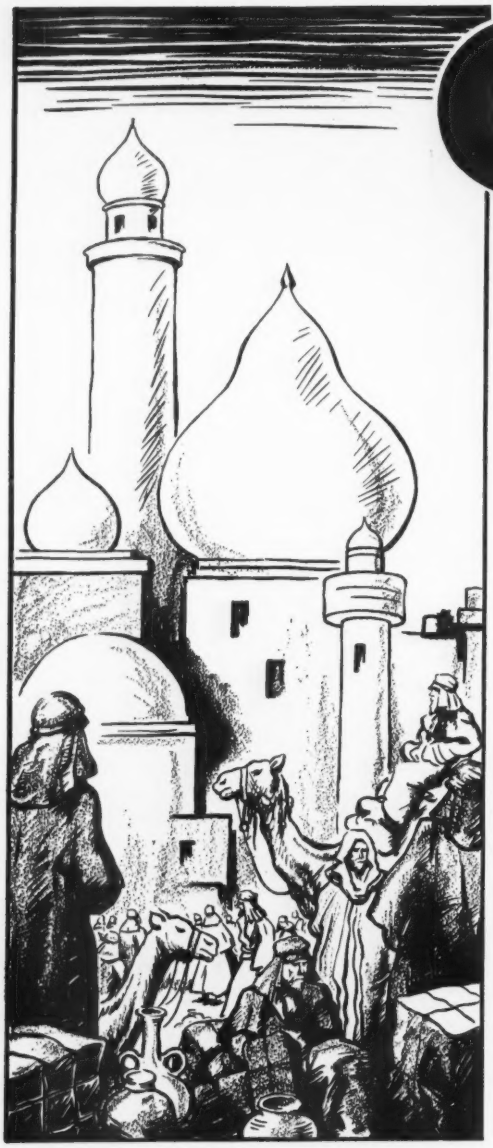
Sayman Products Co., St. Louis, is currently pushing its "Sayman's Vegetable Wonder Soap" through the use of druggist's counter display cards which offer a pair of silk stockings as a premium in exchange for 25 cents and one soap wrapper.

CSA Party—Sept. 5-7

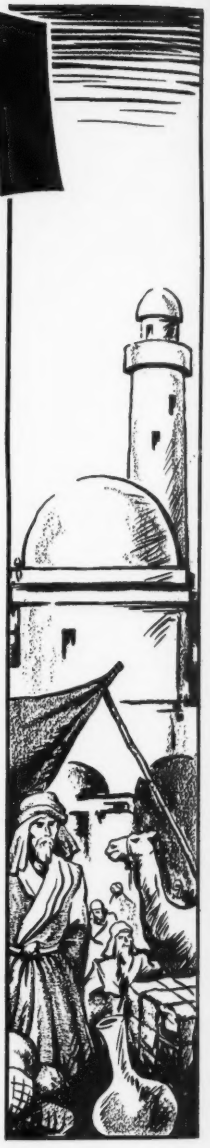
A 20th Anniversary Party of the Salesmen's Association of the American Chemical Industry will be held September 5-6-7 at Buckwood Inn, Shawnee-on-the-Delaware, Pa. On Friday, the 5th, there will be an informal get-together at the Inn beginning at 5 p.m. A business session will be held the next morning, at which a speaker from the Office of Production Management will talk on "Priorities." His talk will be followed by a symposium on the subject "The Function of the Chemical Salesman During the Present Emergency," led by six members of the industry. The final golf tournament of the season will be held that afternoon, followed by dinner, awarding of prizes, and an entertainment program. On Sunday, the day's events will include a softball tournament, a horseshoe pitching contest, and an outdoor barbecue. Registration fee for the entire meeting is $2.00. Greens fee, normally $4.00, will be free to all members who have paid their dues. Guests are invited.

Winners in the tournament held at Plandome (L. I.) Country Club July 8 were: G. S. Furman, Merck & Co.; C. W. Frost, Prior Chemical Co.; T. F. Callahan; J. C. Leppart, Columbia Alkali Co.; L. Hutchins, Commercial Solvents Co.; W. L. Mason; J. P. Remensnyder, Heyden Chemical Co.; Robert T. Reid; J. J. McInnes, Jr., Commercial Solvents Co.; Robert J. Quinn, Mathieson Alkali Co.; W. D. Merrill, Joseph Turner & Co.; W. J. Weed, Niagara Alkali Co.; E. W. Haley, Southern Alkali Corp.; J. Burgess; T. J. Starkie, Wishnick-Tumpeer, Inc.; B. Eakins; R. J. Perry and H. Hutton.

The next salesmen's golf tournament will be held August 12th at the Montclair (N. J.) Country Club.



GUM
KARAYA
TRAGACANTH
ARABIC
LOCUST



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ORBIS GUMS can be obtained in any mesh from the finest powder to the various granular forms used to a great extent in the drug field—ground in our modern mill at Newark, New Jersey.

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Please let us know your requirements. Working samples upon request.

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1620 Carr Ave.

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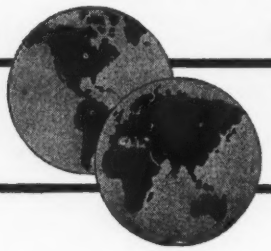
Filter Paper	Stearic Acid	Oleo Resins	Food Colors
Aromatics	Essential Oils	Perfume Bases	Quince Seed
Rice Starch	Zinc Oxide French	Olive Oil	Irish Moss



BIMS Golf Winners

Some 75 members and guests of BIMS of New York met for the June golf outing of the club at White Beeches Country Club, Haworth, N. J., June 26. Winners were as follows: W. Kyle Sheffield, New England Collapsible Tube Co.; Stanley Sapery, Victor Metal Products Corp.; Charles M. Macauley, Pro-phy-lac-tic Brush Co.; E. A. Bush, Bush Pan-America, Inc.; W. F. Zimmerman, Helfrich Labs. of N. Y., Inc.; W. H. Gunther, George Schmitt & Co.; Wallace A. Bush, Ungerer & Co.; Joseph F. Kelly, Hagerty Bros. & Co.; D. F. Stewart Jr., Yardley & Co.; Frank W. Mahr, Blake Mfg. Co.; Bernie Carlin, Yardley & Co.; Alfred Egerter, Plaskon Co.; Thomas F. Hickey, *This Week* Magazine; Richard R. Powell, Plexo Preparations, Inc.; Burton T. Bush, Bush Aromatics, Inc.; R. W. Bjork, L. Sonneborn Sons, Inc.; Jack Patterson, Daggett & Ramsdell; Robert A. Kramer, Evans Chemetics, Inc.; Walter S. Nuckols, Swindell Bros.

The July meeting was held at Sleepy Hollow Country Club, Tarrytown, N. Y., July 31. The next gathering will be at Lakeville Country Club, Great Neck, L. I., on Sept. 18.

Form Bush Pan-America, Inc.

A new company formed for the purpose of importing essential oils and resinous aromatics now being produced in South America has just been incorporated under the name Bush Pan-America, Inc., New York, an outcome of the efforts of the firms S. Stern, Stiner & Co. and Bush Aromatics, Inc., both of New York. Burton T. Bush, head of Bush Aromatics, is president of the new company and will direct its sales. Other officers are E. Stern, vice-president, James Herzog, secretary, and Miss Gertrude Henry, treasurer. The new firm will operate as a separate company. Its headquarters are at 136 Liberty St.

Whitaker Heads Show Comm.

M. C. Whitaker, vice-president of American Cyanamid Co., has again been named chairman of the advisory committee for the 18th Exposition of Chemical Industries which will be held the week of December 1, at Grand Central Palace, New York. The exposition, which is held in New York biennially, is to be built around latest developments in materials and processing equipment.

Niagara & Electro Merge

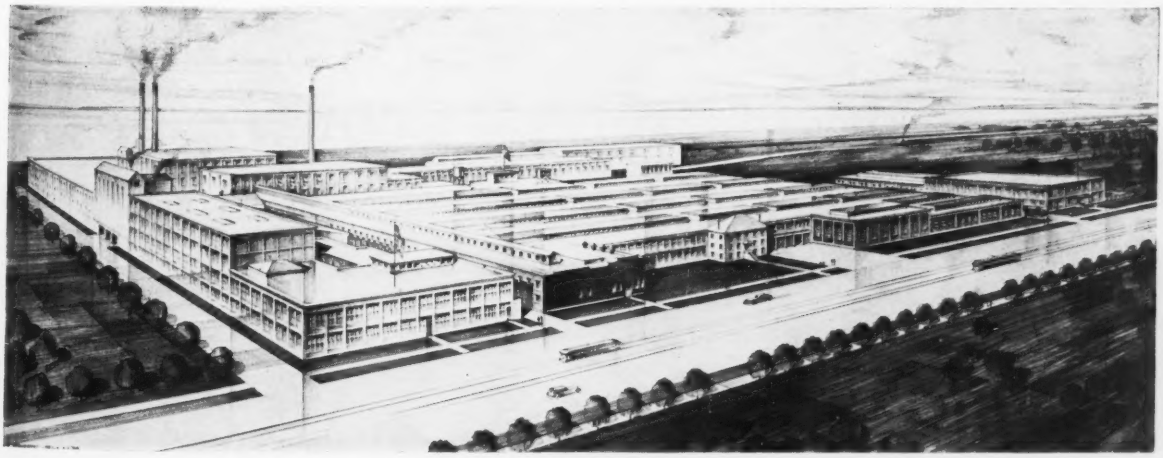
Niagara Alkali Co., Niagara Falls, N. Y., and Electro Bleaching Gas Co., same city, firms which have been affiliated for many years, joined forces July 1 to operate as one organization under the name of Niagara Alkali Co. The move involves no change in personnel or policies of the companies.

Lever Begins "Fairy" Campaign

Lever Brothers Co., Cambridge, Mass., began last month an advertising campaign for "Fairy" soap using newspapers in Troy, Grand Rapids and Detroit. The campaign, which is being handled by Batten, Barton, Durstine & Osborn, Inc., New York, is the first in a decade for the product which was bought over two years ago from Hecker Products Corp., Indianapolis. Newspaper insertions promote a one-cent sale for "Fairy" which is usually sold at three cakes for 14 cents. Promotion of "Fairy" is tying in, it is said, with the present interest in white floating soaps developed by the sales battle between "Swan" and "Ivory."

Change Package Contest Set-Up

Classification of packages in the 11th annual All-America Package Competition, annually sponsored by *Modern Packaging* magazine, has just been revised according to an announcement by Charles A. Breskin, publisher. The revision has taken the form of classifying entries by industries rather than by package type as was the practice in former years. Formerly a package was entered as a bottle, Jar, tube or the like. Now it will be entered according to the industry in which it is produced and marketed. New classification No. 9 covers drugs, chemicals and drug sundries, while No. 10 covers cosmetics, toilet preparations and articles. Entries for the com-



Caustic soda, caustic potash, carbonate of potash and paradichlorobenzene are manufactured at the large modern Niagara Falls plant of Niagara Alkali Co.

petition are now being taken. Among the judges in this year's contest is William T. Bristol Jr., of Bristol-Myers Co., Hillside, N. J.

M.M.&R. Increases Plant Space

Magnus, Mabee & Reynard, Inc., New York, has just announced the acquisition of premises adjoining their plant at 16 Desbrosses street, New York. This expansion adds about 20 per cent to M. M. & R. plant facilities, it is said. The new space is to be used primarily for storage. The company's sales are now at the highest levels in 46 years of operations, according to President Percy C. Magnus.

Soap Co.'s Make Telecast Debut

Procter & Gamble Co., and Lever Bros. Co., were two of the four original sponsors of the first commercial television broadcast in the United States which took place July 1 when NBC's New York television station WNBT commenced operations on a paying basis. Commercial for "Ivory" soap on the P & G program was built around the "dishpan hands" theme. "Spry" is being advertised on the Lever telecast.

Canco Begins St. Paul Plant

Construction of new plant facilities for American Can Co., New York, at a cost of several million dollars, has just been started in the St. Paul-Minneapolis area. The new plant is designed to take care of the company's general line and packers can business in the territory which includes Minnesota, Iowa, Montana and part of Wisconsin.

Quaker Corp. Shares Profits

All employees of Quaker Chemical Products Corp., Conshohocken, Pa., received cash payments ranging from one week's to six weeks' pay on July 1 in accordance with the company's profit-sharing policy. This payment, based on the individual employees term of service, was in addition to a similar distribution made at the end of 1940.

Accidents in Soap Industry

Injuries and deaths in the soap industry were 13 per cent more frequent in 1940 as compared with 1939 but accidents were 17 per cent less severe in 1940 according to figures compiled by National Safety Council, Inc., Chicago, based on a study of 32 soap plants. Data from the plants covered show that out of a total of 24,835,000 man-hours worked, 24,823 man-hours were lost as a result of two deaths or permanent total disabilities, 16 permanent partial disabilities, and 280 temporary total disabilities or a total of 298 reportable industrial accidents. The frequency rate of injuries in the soap industry in 1940 was 12.00 reportable accidents per million hours of exposure and the severity rate was 1.00 day lost as a result of reportable accidents per 1,000 man-hours of exposure. For the entire chemical industry, the frequency rate was 8.65 and the severity rate was 1.33 for 1940.

Among soap plants, the one with the best all-time no-injury record was the Hammond, Ind., plant of Lever Bros. where 3,196,335 continuous man-hours were worked without a disabling injury from December 15, 1938 to November 12, 1940. On the 1940 honor roll are listed the following plants: the Hammond, Ind., plant of Lever Bros. Co. which had the lowest frequency rate among large plants—0.62; the Jersey City, N. J., plant of Colgate-Palmolive-Peet Co. which had the lowest severity rate among large plants—0.02; the St. Louis plant of Lever Bros. Co. which had the lowest frequency rate among small units—3.25; and the Manchester division of Consolidated Rendering Co. which had the lowest severity rate among small plants—0.01.

FWDA To Meet Sept. 14-17

The twenty-sixth annual convention of the Federal Wholesale Druggists' Association will be held at the Greenbrier, White Sulphur Springs, W. Va., September 14 to 17, it was announced recently by W. D. Barry, chairman of the associate membership section. S. B. Penick Sr. is treasurer of the association.

P & G Launches "Velvet Suds"

Procter & Gamble's new "Ivory" soap was formally introduced at a preview press luncheon attended by about 100 guests at the Waldorf-Astoria hotel, New York, July 10. The improved product, newly packaged in blue and white, has actually been on the market in various hard- and soft-water sections of the country for the past six months or more while test campaigns were in progress. At the luncheon, Miss Eleanor Ahern, director of home economics of P & G, as hostess, introduced W. G. Werner, advertising manager, who announced the advent of the new "Ivory," said to be the result of years of experimentation and nearly a year of market research. Improved purity, mildness, and lathering characteristics were emphasized by Mr. Werner as qualities of "velvet suds Ivory" and these properties were demonstrated in simple visual tests by Dr. J. C. Ervin, of P & G's technical staff, who compared its solubility with three other unnamed brands and its sudsing quality with a sample of the old "Ivory."

Both the paper wrapping and the cake itself have been restyled along more modern lines. The term "velvet suds" does not appear on the package but is being used in advertising in newspapers and magazines in a countrywide campaign.

William Campbell Dies

William Hall Campbell, president of Garrigues, Stuart & Davies, glycerin brokers, New York, died last month at Plainfield, N. J., after an illness of several weeks. He was fifty-nine years old and had been associated with the chemical business in New York for about forty-four years. Born in New York in 1882, he joined the firm of Charles F. Garrigues Co. in 1897. Upon Mr. Garrigues death in 1909, Mr. Campbell purchased the business, continuing as president until his death.

U.S.I. ALCOHOL NEWS

August ★ A Monthly Review of Technical Developments for Chemists and Executives ★ 1941

LOTION-MAKERS CHOOSE INDALONE

Outdoor activities bring a demand for non-greasy lotions with sun-screening and insect-repellent properties. Lotions of this type, formulated with INDALONE, U.S.I.'s film-forming solvent, have been placed on the market this season by a number of leading manufacturers.

Sun-Screening, Insect-Repellent Products Employ U.S.I. Solvent

Non-greasy lotions that combine sun-screening and insect-repellent properties are being successfully formulated this season with the aid of INDALONE*, U.S.I.'s slow-evaporating, film-forming solvent. INDALONE is highly effective as an insect repellent, and offers special advantages when it is used in combination with U.S.I.'s light-screen, BK-5*, in the formulation of suntan products. Used in this way, INDALONE and BK-5 have the property of increasing each other's sun-screening effectiveness. INDALONE's film-forming properties suggest additional potentialities of the manufacture of preparations to protect the skin from windburn. An important feature of INDALONE that is currently of special interest is its ability to repel such insects as chiggers, frequently encountered in the vicinity of Southern camps.

INDALONE is virtually odorless and non-greasy in character. Its repellency is due to its bitter taste and its effect on nerve endings in the feet of insects.

U.S.I. will gladly furnish readers with additional information on uses of INDALONE.

* *Registered Trade Mark*

INDUSTRIAL ALCOHOL USES DESCRIBED IN NEW BOOKLET

History, manufacture, and applications of alcohol are described in "The Story of Industrial Alcohol," a new booklet issued by U.S.I. Alcohol production processes are shown in flow sheet form. Applications are listed in considerable detail, and are also summarized in handy chart form for easy reference. The booklet also includes a summary of the Government regulations on the purchase and use of industrial alcohol.

Copies of this helpful and informative booklet may be obtained free of charge by writing U.S.I.

TECHNICAL DEVELOPMENTS

For further information write U.S.I.

Synthetic lauric acid is available in ample quantities, is suitable for use in soaps, shampoos, cosmetics, wetting agents, and many other applications, according to the manufacturer. **(No. 480a)**

An imitation bergamot is reported to be an excellent substitute for the natural product where Oil Bergamot N. F. is not required. Tests in laboratory and in products show high odor stability in toilet waters, soaps, and other products, it is said. **(No. 481a)**

Solvent recovery is possible with a new mixer that incorporates a condenser. Maker says that the equipment is suitable for the manufacture of many chemical, pharmaceutical, and cosmetic products. Mixing kettle is of stainless steel. **(No. 482a)**

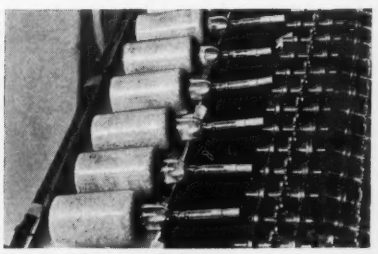
Easy-to-clean surfaces are said to result from the use of a new line of maintenance paints impregnated with wax particles. **(No. 483a)**

A non-staining packing recently developed is described as suitable for use in apparatus handling liquids that must be kept unstained and uncontaminated. Maker says that it is snow-white, and contains an odorless, tasteless, edible, and chemically resistant lubricant. **(No. 484a)**

A synthetic wax can be used successfully as a substitute for carnauba wax in certain types of polishes, it is indicated by recent tests. The product is said to be practically odorless, pearly white in color, and extremely hard. **(No. 485a)**

Cetyl alcohol flakes are said to have definite advantages over cetyl alcohol technical. The new product is described as nearly odorless and uniform in color and appearance. It is reported to result in a heavier consistency in creams, and to exert a stabilizing action in cosmetic emulsions. **(No. 486a)**

BLOOD PLASMA PREPARED BY RAPID FREEZING PROCESS



Courtesy of Sharp & Dohme

Problem of preserving labile biological substances appears to have been successfully solved after long research by the development of a unique method of rapid freezing and vacuum dehydration from the frozen state, often referred to as the lyophile process. Outstanding application of the process, which represents a revolutionary advance in the preservation of biological products, is in the preparation of blood plasma, but the method has also been applied to a variety of therapeutic agents from living sources. Since it is essential that the freezing be rapid, solid carbon dioxide is employed as the freezing agent.

Solid carbon dioxide ("DRY-ICE") is manufactured and supplied by Pure Carbonic, Incorporated, an associated company of U.S.I.

CONTRACTS AWARDED

Green Soap Bids

Crystal Soap & Chemical Co., Philadelphia, entered the low bids on 19,350 lbs. green soap at $1,575.09, and 8,000 lbs. green soap at $1,017.50 in a recent opening by the procurement division, Veterans Administration, Washington, D. C.

Cleaning Compound Bid

In a recent opening for the Panama Canal at Washington, D. C., the following low bids were received: 1,000 lbs. cleaning compound at $100 bid by Industrial Rubber Co., Philadelphia; and 200 gals. rust preventive compound at $180 bid by R. M. Hollingshead Corp., Camden, N. J.

Soap Powder Bid

Armour & Co. of Del., Chicago, bid low on 15,000 lbs. soap powder at 4.8c a lb. in a recent opening for the Panama Canal at Washington, D. C.

Disinfectant Bids

In a recent opening by the Department of the Interior, Lehn & Fink Products Co., Bloomfield, N. J., submitted the following low bids: 2,475 gals. saponated solution of cresol at $2,366.10 and $2,264.10; 600 gals. saponated solution of cresol at $586.80 and $502.20; 360 gals. cresylic disinfectant solution at $337.32; 990 gals. cresylic disinfectant solution at $905.66; 2,500 gals. cresylic disinfectant solution at $2,437; 1,500 gals. cresylic disinfectant solution at $1,465.20; 3,000 gals. saponated solution of cresol at $3,060 and $2,924.40.

Dishwashing Compound Awards

The following companies were awarded contracts for dishwashing compounds in a recent opening by the procurement division, Veterans Administration, Washington, D. C.: Calgon, Inc., Pittsburgh; Du Bois Soap Co., Cincinnati; Economics Laboratory, Inc.; St. Paul; John T. Stanley Co., New York.

Green Soap Award

Crystal Soap & Chemical Co., Philadelphia, was awarded contracts on 27,350 lbs. green soap at $2,592.59 in a recent opening by the procurement division, Veterans Administration, Washington, D. C.

Soap Bids

Swift & Co., Chicago, was low bidder on 2,000 gals. liquid soap at 13c in a recent opening by the bureau of supplies and accounts, Navy Department, Washington, D. C., for Oakland, Cal. In the same opening, Colgate-Palmolive-Peet Co., Berkeley, Cal., bid low on 2,000 lbs. white floating soap at 9.5c.

Soap Powder Bids

In a recent opening by the bureau of supplies and accounts, Navy Department, Washington, D. C., the following low bids were entered: Chemical Mfg. & Dist. Co., Easton, Pa., 500,000 lbs. soap powder at 3.84c for Sewell's Pt., Va.; Colgate-Palmolive-Peet Co., Berkeley, Cal., 1,500,000 lbs. soap powder at 3.676c for Oakland, Cal.

Metal Polish Bids

C. F. Jameson & Son, Haverhill, Mass., submitted low bids on 500,000 pts. liquid metal polish at 7.79c for Sewell's Pt., Va., and on 600,000 pts. liquid metal polish at 8.86c for Oakland, Cal., in a recent opening by the bureau of supplies and accounts, Navy Department, Washington, D. C.

Metal Polish Awards

R. M. Hollingshead Corp., Camden, N. J., was awarded the contract on 2,000 qts. automobile body polish at 22.5c a qt. in a recent opening for Rock Island Arsenal, Ill. In the same opening, International Metal Polish Co., Indianapolis, was awarded a contract for 1,000 lbs. metal polish paste at 13c a lb.

Metal Polish Awards

Wonder Chemical Co., Brooklyn, was awarded contracts on 500 pts. liquid metal polish at $44.50 and 200 lbs. paste metal polish at $23 in a recent opening for San Antonio Arsenal, Texas.

Cleansing Material Awards

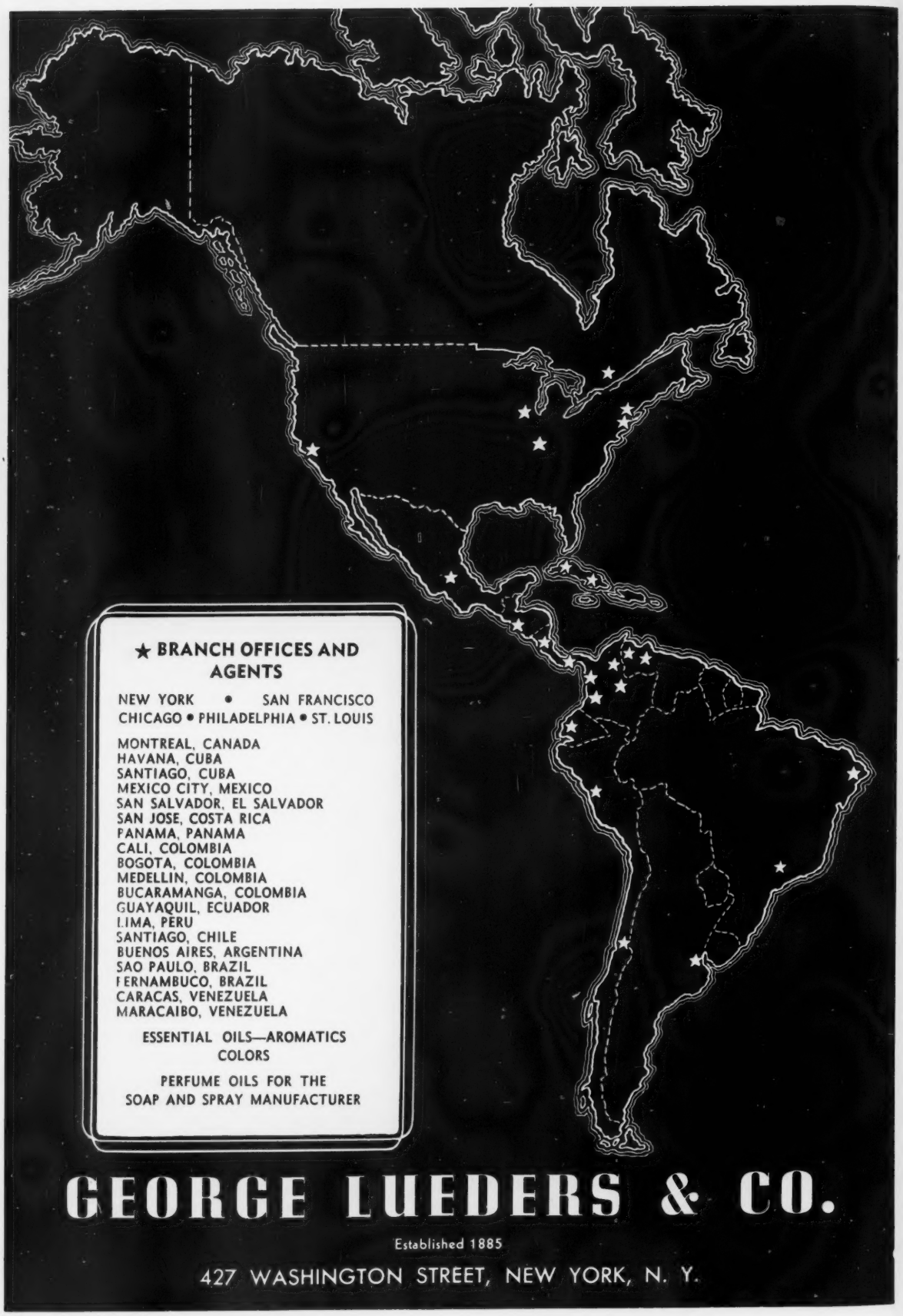
In a recent opening for Raritan Arsenal, N. J., the following awards were made: R. M. Hollingshead Corp., Camden, N. J., 20,000 lbs. leather equipment soap at 9.4c; Armour & Co. Soap Wks., Chicago, 2,000 lbs. scouring powder at 3c.

TSP Award

Kraft Chemical Co., Chicago, was awarded the contract on 50,000 lbs. trisodium phosphate at 2.675c per pound in a recent opening by the Army Quartermaster Corps for Jeffersonville, Ind.

Q. M. C. Awards

In a recent opening by the Army Quartermaster Corps for miscellaneous supplies for Jeffersonville, Ind., the following awards were made: Wonder Chemical Co., Brooklyn, 17,000 pts. liquid metal polish at 6.59c per can; J. L. Prescott Co., Passaic, N. J., 51,000 cakes stove polish at 3.45c per cake; Peaslee Gaulbert Corp., Louisville, 15,000 lbs. flake naphthalene at $6.84 per cwt.; Day & Frick, Philadelphia, 28,000 lbs. grit soap at 3.48c lb.; Fels & Co., Philadelphia, 1,240,000 lbs. laundry soap at 4.861c per lb.; Eagle Soap Co., Brooklyn, 200,000 11-oz. cakes grit soap at 3.5c lb.; M. H. Fairchild & Bro., Chicago, 50,000 11-oz. cakes grit soap at 2.76c lb.; Iowa Soap Co., Burlington, Iowa, 6,400 lbs. soap chips at 10c per lb., 60,000 lbs. laundry soap at 4.83c per lb., and 195,000 cakes toilet soap at 10c per lb.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SOAP AND SPRAY MANUFACTURER
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427 WASHINGTON STREET, NEW YORK, N. Y.

NEW TRADE MARKS

The following trade-marks were published in the July issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

NOXON—This in vertical solid letters describing cleaner. Filed by Leopoldine Nottebaum, Newark, Apr. 24, 1941. Claims use since Oct. 3, 1912.

ONCE OVER—This in semi-script letters over drawing of rider jumping fence describing shampoo. Filed by Parker-Bouldin Co., St. Paul, Feb. 28, 1941. Claims use since Feb. 4, 1935.

"DUXBAK"—This in solid letters describing polishing wax. Filed by Candy & Co., Chicago, Sept. 16, 1940. Claims use since Sept. 7, 1940.

PYNAMITE—This in solid letters describing detergent. Filed by Morton S. Pine Co., Cleveland, Mar. 17, 1941. Claims use since Jan. 1, 1940.

WATCH-IT — This in solid letters inside triangle describing cleaner. Filed by S. L. F. Sales & Service Corp., New York, Apr. 8, 1941. Claims use since Jan. 30, 1941.

PUTTING THE WORLD ON ITS FEET—This in solid letters over drawing of globe describing foot powder. Filed by V. Marne, San Diego, Calif., Nov. 4, 1938. Claims use since Aug. 15, 1938.

SYNTONE—This in solid letters describing insecticide. Filed by the United States Rubber Co., New York, Apr. 26, 1941. Claims use since July 9, 1940.

FLOR GLO—This in solid letters describing surfacing wax. Filed by Fuld Bros., Baltimore, Apr. 29, 1941. Claims use since Mar., 1941.

BLUE SAPPHIRE—This in solid letters describing soaps. Filed by St. Denis Toiletries, Inc., New York, May 15, 1941. Claims use since May 13, 1941.

SPRING BOUQUET — This in solid letters describing toilet soap. Filed by Hewitt Soap Co., Dayton, May 16, 1941. Claims use since Jan., 1940.

"HANDRESS" — This in solid letters describing hand cleaners. Filed by Mathias Smyser Lewis, Lewis Laboratories, Drexel Hill, Pa., May 22, 1941. Claims use since May 13, 1941.

"LA CREOLE"—This in solid letters describing shampoo. Filed by Plough, Inc., Memphis, Mar. 14, 1941. Claims use since Jan., 1911.

TRIGUE—This in script letters over representation of flask describing shampoos. Filed by Harry D. Koenig, Anré, New York; Mar. 24, 1941. Claims use since Jan. 10, 1941.

PARAWAY—This in solid letters within oval above the word "Deodorizer" describing deodorizer. Filed by Anglo Soap Corp., New York, Mar. 28, 1941. Claims use since Mar. 23, 1940.

LA JOLIE—This in fancy letters describing shampoo. Filed by Lina Caveliero, Inc., Seattle, Mar. 31, 1941. Claims use since Dec. 2, 1932.

HAPPY HEARTS—This in script letters describing shampoos. Filed by Kirby's Products, Union, S. C., May 6, 1941. Claims use since Jan. 15, 1941.

MAGITEX—This in script letters describing dog shampoo. Filed by Magitex Co., Saco, Maine, May 8, 1941. Claims use since Apr. 17, 1941.

TWEEN—This in solid letters describing emulsifying agents. Filed by Atlas Powder Co., Wilmington, Del., May 22, 1941. Claims use since Apr. 25, 1941.

IDAHO-IT—This in solid letters describing automobile polish. Filed by Charles Marshall, Marshall Products, Nampa, Idaho, May 14, 1940. Claims use since Apr. 6, 1940.

FRIENDSHIPS GARDEN — This in script letters under the words "Early American" within floral border describing soaps and soap products. Filed by Shulton, Inc., New York, Dec. 18, 1940. Claims use since Sept. 4, 1940.

SAN-SO—This in solid letters describing germicidal soap. Filed by Hewitt Soap Co., Dayton, Apr. 29, 1941. Claims use since Aug., 1937.

CYGNET—This in solid letters over drawing of swans describing soap. Filed by Chas. W. Young & Co., Philadelphia, May 2, 1941. Claims use since Mar. 31, 1905.

KEYSTONE—This in script letters describing water softening preparation. Filed by Martin T. Scanlon, Keystone Products Co., Pittsburgh, Mar. 15, 1941. Claims use since June 1, 1938.

KOPPERSOL—This in solid letters describing fungicide. Filed by Destruxol Corp., Pasadena, Cal., May 21, 1941. Claims use since Mar. 18, 1935.

H. V. 222—This in outline letters describing athlete's foot preparation. Filed by H. V. Laboratories, Inc., St. Louis, May 31, 1941. Claims use since June 1, 1929.

PLURAWET—This in solid letters describing wetting agent. Filed by Canusa Corp., Arlington, N. J., June 12, 1940. Claims use since Feb. 7, 1940.

PLURALAN—This in solid letters describing moth-proof. Filed by Canusa Corp., Arlington, N. J., June 12, 1940. Claims use since Mar. 11, 1940.

HERL CROWTHER'S "TODAY"—This in script and solid letters describing dentifrice. Filed by Crowther Products, Los Angeles, Sept. 14, 1940. Claims use since May 11, 1940.

O-I-C — This in solid letters describing insecticide. Filed by Cor-

kins Chemical Co., Cincinnati. May 9, 1941. Claims use since Sept. 23, 1933.

COPOX—This in solid letters describing insecticide. Filed by Stauffer Chemical Co., San Francisco. May 13, 1941. Claims use since Nov., 1938.

SILV-R-OCH—This in solid letters describing insecticide. Filed by Destruxol Corp., Ltd., Pasadena, Calif., May 21, 1941. Claims use since Dec. 18, 1940.

PLURATEX—This in solid letters describing textile detergent. Filed by Canusa Corp., Arlington, N. J., June 12, 1940. Claims use since Mar. 21, 1940.

Trade Marks Granted

388,373. Cleaners. J. B. Ford Co., Wyandotte, Mich. Filed Sept. 27, 1940. Serial No. 436,428. Published Apr. 15, 1941. Class 4.

388,511. Germicidal Soaps. James A. Smith, Phila. Filed Jan. 24, 1939. Serial No. 415,192. Published Dec. 12, 1939. Class 4.

388,539. Hand Soap. Pep Boys—Manny, Moe and Jack. Phila. Filed July 5, 1940. Serial No. 433,721. Published Apr. 22, 1941. Class 4.

388,542. Automobile polish. Car-Glo Prods. Co., New York. Filed Aug. 7, 1940. Serial No. 434,767. Published Dec. 24, 1940. Class 16.

388,553. Metal Polish. Dominant Prods. Co., New York. Filed Nov. 1, 1940. Serial No. 437,466. Published Apr. 22, 1941. Class 4.

388,557. Cleaner. Albion & Sons, Cambridge, Mass. Filed Nov. 22, 1940. Serial No. 438,103. Published Mar. 18, 1941. Class 16.

388,580. Insecticides. Selig Co., Atlanta. Filed Jan. 7, 1941. Serial No. 439,475. Published Apr. 15, 1941. Class 6.

388,586. Dentrifice. E. R. Squibb & Sons, New York. Filed Jan. 14, 1941. Serial No. 439,673. Published Apr. 22, 1941. Class 6.

388,631. Insecticides. Peride Products, Inc., New York. Filed Feb. 14, 1941. Serial No. 440,661. Published Apr. 22, 1941. Class 6.

388,647. Cleaner. J. B. Ford Co., Wyandotte, Mich. Filed Feb. 27, 1941. Serial No. 441,052. Published Apr. 22, 1941. Class 4.

388,655. Metal Cleaner. Selig Co., Atlanta. Filed Mar. 3, 1941. Serial No. 441,185. Published Apr. 22, 1941. Class 4.

388,670. Boiler compound. Warner Chemical Co., New York. Filed Mar. 17, 1941. Serial No. 441,655. Published Apr. 22, 1941. Class 6.

388,770. Stain remover. Superkleen Co., New York. Filed Feb. 26, 1941. Serial No. 441,038. Published Apr. 29, 1941. Class 4.

388,788. Soap cleaning pads. Ohio Match Co., Wadsworth, Ohio. Filed Mar. 7, 1941. Serial No. 441,323. Published Apr. 29, 1941. Class 4.

388,829. Soaps. Brillo Manufacturing Co., Brooklyn, N. Y. Filed Sept. 5, 1939. Serial No. 423,289. Published May 6, 1941. Class 4.

388,839. Cleanser. Tomalene Manufacturing Co., Lock Haven, Pa. Filed June 11, 1940. Serial No. 432,904. Published May 6, 1941. Class 4.

388,900. Floor sweeping compound. Huntington Laboratories, Inc., Huntington, Ind. Filed Oct. 10, 1940. Serial No. 436,804. Published May 6, 1941. Class 4.

388,913. Granulated hand soap. Anderson Co., Gary, Ind. Filed Feb. 28, 1941. Serial No. 441,073. Published May 6, 1941. Class 4.

388,914. Granulated hand soap. Anderson Co., Gary, Ind. Filed Feb. 28, 1941. Serial No. 441,076. Published May 6, 1941. Class 4.

C-P-P To Erect New Ind. Plant

A half million dollar plant for the manufacture of soaps and toiletries is to be erected by Colgate-Palmolive-Peet Co., Jersey City, at Jeffersonville, Ind., just west of the present plant, it was announced recently by Harold N. Crooker, superintendent. Construction is to begin in the near future and the plant will be completed in about a year, it is said. The main portion of the building will be two stories high with the remainder rising to four stories. More than 150 men and women will be employed in the plant, which will be devoted to the manufacture of "Colgate" soap and "Palmolive" brands of dental cream, shaving cream and talcum and face powder.

R. E. Felton Visits East

Robert E. Felton, of Los Angeles, manager of the West Coast division of Felton Chemical Co., perfuming materials, Brooklyn, flew to New York recently on the "Stratoliner" for a week's visit at the main offices of the company. "Felton is enjoying the biggest year by far in its history," stated Mr. Felton.

Shay Becomes Chiris Director

Percy A. Shay, a partner of the law firm of Coudert Brothers, Washington, New York and Paris, has just been elected a member of the board of directors of Antoine Chiris Co., New York, and a vice-president of the company. At the same time, George Besler was also elected a vice-president of the corporation.

NOPCO To Build on Coast

A new plant for the manufacture of vitamin products is to be erected at Richmond, Cal., by National Oil Products Co., Harrison, N. J. Eventually, according to P. S. Brown, vice-president, plant facilities will be expanded to include production of chemicals and cosmetics as well as the full line of NOPCO products.

Solvay Sets Up New Dept.

Solvay Process Co., New York, has recently established a separate product development section with W. E. Blair as manager and D. H. Ross as assistant manager. Headquarters of the new section will be at 40 Rector Street. Work will involve cooperation with the research and technical sales groups to broaden the scope of Solvay's service to customers.

RAW MATERIAL MARKETS

As of July 28, 1941

NEW YORK—Shortages of many materials used in the making of soap and sanitary products became more pronounced during the past month, although trading in fats, oils and greases slackened off toward the end of the month and, for the most part, purchasing was restricted to small lots. Prices of fatty materials are currently somewhat higher than those of a month ago, materials having risen pricewise including the fatty acids, greases, palm oil, linseed oil, olive oil, teaseed oil and whale oil. Among the essential oils, upward price revisions became the general rule with numerous items becoming very scarce, particularly since the beginning of the Russo-German war and the stoppage of Japanese trade. The imported vegetable waxes, carnauba, candelilla and bees, figured in the general price advance, as did several of the aromatic chemicals. The price of trisodium phosphate was advanced 50 cents per 100 pounds. Saponification glycerin was advanced one cent a pound. Among insecticide raw materials, the price of red squill was dropped considerably by one distributor; pyrethrum products were reduced slightly and rotenone-bearing materials were advanced.

Vegetable Oils

Nominal quotations on coconut oil are approximately 7¼ cents a pound in tank cars, N. Y., and 6¼ cents a pound on the Pacific Coast. Copra is currently quoted at $3.85 cwt. strictly nominal. Ocean freights are said to be easier on coconut oil and copra. First hand offerings are scarce. Political occurrences in the Pacific area are being watched with much interest. The following vegetable oils are now quoted at higher levels than a month ago: palm oil, which is nominal at 6½ cents a pound as compared with the price last month of 5¾ cents, supplies being small; corn oil which is almost ¾ cent higher than last month; olive oil now quoted at a level of $3.85 to $4.00 a gallon; teaseed oil at 23 cents a pound; and olive foots.

Animal Fats

Prices of inedible tallow remained fairly steady all during the period, with offerings generally light and buyers and sellers inclined to hold off for further developments. Current prices are: city extra tallow, loose, fob., N. Y., 7⅞ cents a pound; special tallow, 7¾ cents a pound. Choice white grease is now quoted at 8 cents a pound.

Essential Oils

Recent developments in the Far East have been strongly reflected in essential oils originating in that area. On practically all items, the old story of increasing scarcity of the natural oils linked with inability of suppliers to meet the demand resulted in further advances. Far Eastern oils which have been advanced steadily include anise, cassia, cananga, citronella, camphor, artificial sassafras, pine needle, and vetiver. Many producers have withdrawn prices on camphor, cassia and artificial sassafras and offerings are limited on the remaining items. Other materials which have been advanced during the month are sweet almond, caraway, bois de rose, juniper tar, cedar leaf, eucalyptus, linaloe, and spearmint.

Insecticide Materials

The scarcity of red squill appeared to be over this month when one of the foremost importers of this material reduced his price from 80 cents a pound to 47 cents a pound for the free flowing material, fob, New York or Chicago, and at the same time announced that plentiful supplies were available in the United States. Situation was eased when a trade agreement between the U. S. Government and the British and Vichy authorities opened a limited steamer service between New York and North Africa. Other importers lack supplies and are quoting prices ranging up to 75 cents a pound. Prices on pyrethrum were lowered slightly this period. There is no shortage of this material and arrivals from Kenya are large. The rotenone powders, derris and cube, the bulk of which is shipped from Singapore, became tighter as far as future supplies are concerned and prices were advanced 3 to 4 cents a pound above last month's quotations. Sodium fluoride is quite scarce and many firms are also encountering serious difficulty in getting thallium sulfate, naphthalene flakes and borax.

H. G. Buckley Dead

Harry G. Buckley of Brooklyn, N. Y., for many years connected with the sale of soaps and allied products for several prominent manufacturers, died at his home, 314 Eleventh St., Brooklyn, on July 28. Funeral services were held on July 30 at his home. For some years, Mr. Buckley acted as sales representative for the Davies-Young Soap Co., Iowa Soap Co., Superior Soap Co. and others in the Metropolitan area.

Fat Antioxidant

Fats and oils are stabilized by the addition of reaction products of castor oil and an aliphatic acid having at least two reactive groups. Arthur Guillaudeu. Canadian Patent No. 396,649.

RAW MATERIAL PRICES

(As of July 28, 1941)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .08½	$ .09
Acid, Boric, bbls., 99½%	ton	96.00	128.00
Cresylic, drums	gal.	.68	.78
Low boiling grade	gal.	.68	.78
Muriatic, C. P., carboys	lb.	.08	—
Oxalic, bbls.	lb.	.10¾	.12
Adeps Lanae, hydrous, drums	lb.	.24½	.25
Anhydrous, drums	lb.	.26½	.27
Alcohol, Ethyl, U.S.P., bbls.	gal.	6.02½	6.09
Complete Denat., SD1, dms., ex.	gal.	.33	.38
Alum. Potash lump, bbls.	lb.	.04	—
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., bbls.	lb.	.08	—
Bentonite, 1, works, 325 mesh	ton	16.00	—
Bentonite, 2, works, 200 mesh	ton	11.00	—
Bleaching Powder, drums	100 lb.	2.00	3.35
Borax, pd., cryst., bbls., kegs	ton	55.00	74.00
Carbon Tetrachloride, car lots	gal.	.66½	1.10
L. C. L.	gal.	.73	1.20
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.00	16.00
Cresol, U.S.P., drums	lb.	.10¼	.10¾
Creosote Oil	gal.	.13½	.14½
Feldspar, works (200 to 325 mesh)	ton	32.00	35.00
Formaldehyde, bbls.	lb.	.05½	.06
Fullers Earth	ton	15.00	—
Glycerine, C.P., drums	lb.	.14½	—
Dynamite, drums	lb.	—	Nom.
Saponification, drums	lb.	.12½	.13¼
Soap, lye, drums	lb.	.09	—
Hexalin, drums	lb.	.30	—
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	ton	6.25	13.00
Mercury Bichloride, kegs	lb.	2.24	—
Naphthalene, ref. flakes, bbls.	lb.	.07	.07¼
Nitrobenzene (Mirbane) drums	lb.	.08	.09
Paradichlorbenzene, drums	lb.	.11	.13½
Petrolatum, bbls. (as to color)	lb.	.02¾	.07½
Phenol (Carbolic Acid) drums	lb.	.13¼	—
Pine Oils, bbls.	gal.	.50	.59
Potash, Caustic, solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	—
Liquid, 45% basis	lb.	.02⅞	.03¾
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.02¾	.03⅛
Pumice Stone, powder	100 lb.	No Prices	
Rosins (net wt., ex yard, New York)—			
Grade D to H	100 lb.	2.97	2.97
Grade I to N	100 lb.	2.95	3.05
Grade WG to X	100 lb.	3.18	4.47
Wood, ex. dock	100 lb.	2.20	3.50
Rotten Stone, pwd., bbls.	lb.	.12¾	.18¾
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04½
Olive Castile, bars	lb.	.28	.38
Olive Castile, powder	lb.	.33	.40
Powdered White, Neutral	lb.	.24	—
Olive Oil Foot, bars, 68-70%	lb.	.18	—
Green, U.S.P.	lb.	.09	.10
Tallow Chips, 88%, car lots	lb.	.09½	—
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.10	1.35
Carlots, in bulk	100 lb.	.90	.95
Soda Caustic, cont., wks., solid	100 lb.	2.30	—
Flake	100 lb.	2.70	2.95
Liquid, tanks, 47-49%	100 lb.	1.95	—
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	14.20	16.60
Sodium Fluoride, bbls.	lb.	.08	.09¼
Sodium Hydrosulfite, bbls.	lb.	.16	.17
Sodium Metasilicate, ground	100 lb.	3.75	4.80
Crystalline	100 lb.	2.35	3.35
Sodium Pyrophosphate	100 lb.	5.10	5.60
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.22	.29½
Triethanolamine	lb.	.19	.20
Trisodium Phosphate, bags, bbls.	100 lb.	2.85	3.60
Zinc Oxide, lead free	lb.	.06½	.07

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.10⅛	Nom.
Castor, No. 1, bbls.	lb.	.11¾	.12¾
No. 3, bbls.	lb.	.11½	.12¼
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.07¼	Nom.
Tanks, Pacific Coast, futures	lb.	.06¼	—
Copra, bulk, coast	lb.	.0385	Nom.
Corn, tanks, West	lb.	.12⅛	.12¼
Cottonseed, crude, tanks, mill	lb.	.10½	.10¾
PSY, futures	lb.	.11½	.11⅞
Fatty Acids—			
Corn Oil, tanks, Chicago	lb.	.14	.14¼
Coconut Oil, tanks, Twitchell, Chi.	lb.	.15	.15¼
Cotton Oil, tanks, Chicago	lb.	.12¾	.13
Settled soap stock, Chicago	lb.	.03⅛	.03¼
Boiled soap stock, 65%, Chi.	lb.	.04⅛	.04¼
Foots, 50%, Chicago	lb.	.03⅛	.03¼
Red Oil, bbls., dist. or sapon.	lb.	.11½	.12½
Tanks	lb.	.10¾	—
Stearic Acid, saponif.			
Double pressed	lb.	.14	.15
Triple pressed	lb.	.16¾	.17¾
Greases, choice white, tanks	lb.	.08	.08¼
Yellow	lb.	.07½	.07⅝
Lard, city, tubs	lb.	.11	—
Linseed, raw, bbl.	lb.	.1110	.1130
Tanks, raw	lb.	.1020	.1040
Olive, denatured, bbls., N. Y.	gal.	3.85	4.00
Foots, bbls., N. Y.	lb.	.16¾	.17¼
Palm, Sumatra, cif. New York, tanks	lb.	.06½	Nom.
Palm, kernel, shipment	lb.	No Prices	
Soya Bean, domestic, tanks, crude	lb.	.09⅞	.10
Stearin, oleo, bbls.	lb.	.09¼	.09½
Tallow, special, f.o.b. N. Y.	lb.	.07¾	—
City, ex. loose, f.o.b. N. Y.	lb.	.07⅞	—
Teaseed Oil, crude	lb.	.23	.23½
Whale, refined	lb.	.1010	—

(As of July 28, 1941)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$3.50	$3.75
Bitter, F.F.P.A.	lb.	4.75	5.00
Sweet, cans	lb.	1.75	1.90
Anise, cans, U.S.P.	lb.	.90	.95
Bay, 55-60% phenols, cans	lb.	1.00	1.35
Bergamot, coppers	lb.	20.00	Nom.
Artificial	lb.	2.75	9.25
Birch Tar, rect., cans	lb.	1.50	2.00
Crude, cans	lb.	.90	.95
Bois de Rose, Brazilian	lb.	3.25	3.75
Cayenne	lb.	—	—
Cade (juniper tar), cans	lb.	.72	.95
Cajeput, native, cans	lb.	.82	1.10
Calamus, cans	lb.	—	—
Camphor, Sassy, drums	lb.	.23	Nom.
White, drums	lb.	.26	Nom.
Canange, native, cans	lb.	8.75	9.00
Rectified, cans	lb.	9.25	10.00
Caraway Seed	lb.	10.50	Nom.
Cassia, Redistilled, U.S.P.	lb.	3.40	Nom.
Cedar Leaf, cans	lb.	1.03	1.38
Cedar Wood, light, drums	lb.	.28	.32½
Citronella, Java, drums	lb.	.60	.65
Citronella, Ceylon, drums	lb.	.70	Nom.
Clove, U.S.P., cans	lb.	1.20	1.25
Eucalyptus, Austl., U.S.P., cans	lb.	.67	.70
Fennel, sweet, cans	lb.	2.00	2.35
Geranium, African, cans	lb.	15.00	Nom.
Bourbon, cans	lb.	15.00	Nom.
Turkish (Palmarosa)	lb.	3.15	3.50
Hemlock, tins	lb.	.90	1.25
Lavender, 30-32% ester, cans	lb.	7.25	Nom.
Spike, Spanish, cans	lb.	2.65	3.00
Lemon, Ital., U.S.P.	lb.	5.50	Nom.
Cal.	lb.	3.25	—
Lemongrass, native, cans	lb.	2.00	Nom.
Linaloe, Mex., cases	lb.	2.85	2.95
Nutmeg, U.S.P., cans	lb.	2.15	2.65
Orange, Sweet, W. Ind., cans	lb.	4.75	5.50
Italian cop	lb.	8.00	Nom.
Distilled	lb.	1.40	—
California, expressed	lb.	3.00	—
Origanum, cans, tech	lb.	1.50	2.45
Patchouli	lb.	4.85	6.00
Pennyroyal, dom.	lb.	2.50	2.65
Imported	lb.	2.40	2.75
Peppermint, nat., cans	lb.	3.30	3.80
Redis., U.S.P., cans	lb.	3.50	4.15
Petitgrain, S. A., cans	lb.	1.45	1.55
Pine Needle, Siberian	lb.	1.75	1.90
Rosemary, Spanish, cans	lb.	.88	1.03
drums	lb.	.85	1.00
Sandalwood, E. Ind., U.S.P.	lb.	4.65	5.00
Sassafras, U.S.P.	lb.	1.05	1.20
Artificial, drums	lb.	—	—
Spearmint, U.S.P.	lb.	2.55	2.80
Thyme, red, N. F.	lb.	1.40	2.25
White, N. F.	lb.	.95	2.50
Vetiver, Java	lb.	8.50	11.00
Ylang Ylang, Bourbon	lb.	—	—

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.35	$1.45
Amyl Cinnamic Aldehyde	lb.	1.70	2.00
Anethol	lb.	1.10	1.15
Benzaldehyde, tech.	lb.	.45	.55
N. F. VI	lb.	.85	.95
Benzyl, Acetate	lb.	.44	.48
Alcohol	lb.	.63	.68
Citral	lb.	3.00	4.00
Citronellal	lb.	1.50	2.25
Citronellol	lb.	1.75	2.00
Citronellyl Acetate	lb.	4.00	7.00
Coumarin	lb.	2.75	3.25
Cymene, drums	gal.	.90	1.25
Diphenyl oxide	lb.	.43	.50
Eucalyptol, U.S.P.	lb.	.90	.95
Eugenol, U.S.P.	lb.	2.00	2.10
Geraniol, Soap	lb.	.65	1.00
Other grades	lb.	1.25	2.05
Geranyl Acetate	lb.	1.20	2.50
Heliotropin	lb.	3.00	3.40
Hydroxycitronellal	lb.	2.50	2.75
Indol, C. P.	lb.	32.00	34.00
Ionone	lb.	2.75	3.95
Isoborneol	lb.	.90	1.07
Iso-bornyl acetate	lb.	.80	.95
Iso-Eugenol	lb.	2.90	4.25
Linolool	lb.	3.75	4.00
Linalyl Acetate	lb.	2.75	5.00
Menthol	lb.	5.70	Nom.
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.15	2.30
Paracresol	lb.	4.50	6.00
Salicylate, U.S.P.	lb.	.35	.40
Musk Ambrette	lb.	3.75	4.20
Ketone	lb.	3.90	4.35
Xylol	lb.	1.15	1.55
Phenylacetaldehyde	lb.	4.00	4.10
Phenylacetic Acid	lb.	1.45	1.95
Phenylethyl Alcohol	lb.	2.10	2.50
Rhodinol	lb.	31.00	33.00
Safrol	lb.	—	—
Terpineol, C.P., drs.	lb.	.27	—
Cans	lb.	.30	—
Terpinyl Acetate, 25 lb. cans	lb.	.80	.85
Thymol, U.S.P.	lb.	1.80	1.85
Vanillin, U.S.P.	lb.	2.50	2.75
Yara Yara	lb.	1.45	1.50

Insecticide Materials

Insect Powder, bbls.	lb.	.20	.25
Pyrethrum Extract			
5 to 1	gal.	1.10	1.15
20 to 1	gal.	4.25	4.40
30 to 1	gal.	6.35	6.55
Derris, powder—4%	lb.	.27	.32
Derris, powder—5%	lb.	.30	.35
Cube, powder—4%	lb.	.26	.31
Cube, powder—5%	lb.	.29	.34
Squill, red, dried	lb.	.47	.75

Waxes

Bees, white	lb.	.47	.50
African, bgs.	lb.	—	—
Refined, yel.	lb.	.42	.43
Candelilla, bgs.	lb.	.25	.25½
Carnauba, No. 1, yellow	lb.	.84	.85
No. 2, N. C.	lb.	.77	.78
No. 3, Chalky	lb.	.75	.76
Ceresin, yellow	lb.	.11	.14½
Montan Wax	lb.	No Prices	
Paraffin, ref., 125-130	lb.	.0570	—

PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, Oil & Fat Industries.

Soap Perfume Dangers

THE color of soaps may be influenced unfavorably by certain perfumes which are not resistant to alkali. Many of the cheaper and otherwise satisfactory perfume materials lack alkali-resistance, for example, a number of esters and aldehydes. Oxidation of the odorant is catalyzed by the presence of alkali, benzoic aldehyde being converted to benzoic acid, which readily forms water-soluble sodium or potassium benzoate.

For example, cinnamic aldehyde is oxidized to cinnamic acid, which then has the usual properties of an unsaturated acid. Both synthetic and natural cassia contain a large proportion of cinnamic aldehyde. Anisic aldehyde, also known as aubepine, undergoes a similar reaction, being oxidized to anisic acid with the formation of an intermediary peroxide. Piperonal, also known as heliotropin, decomposes under the influence of sunlight and oxygen, and so should be kept in a cool, dark place. In this case a color change occurs with oxidation to form a darker product.

Decomposition of alkali-sensitive odorants is faster and more far-reaching, the higher the amount of free alkali present. Some odorants are attacked directly by alkali, without undergoing an oxidation effect, the change usually being evidenced by a color change.

Some odorants, on being attacked by alkali, in turn decompose and oxidize the fatty substances. Such an effect usually occurs first on the outer layers of the soap. Acid odorants combine with the free alkali and influence the stability of the soap unfavorably, a small excess of free alkali usually being present to counteract rancidity development. If a trace of unsaponified fat is present, this decomposes in time to form free fatty acids, which are dark colored and which catalyze the decomposition of perfume materials. A small excess of free alkali combines with such fatty acids, causing the soap to be more resistant to deterioration.

Zinc white, which is zinc oxide, added to neutral soap, has a stabilizing action by combining with acid ingredients to form zinc soaps, which have some emulsifying action of their own, and also by adsorbing impurities and preventing their harmful effects. Acids of low molecular weight, which possess greater acidity than fatty acids of high molecular weight, are the first to react with zinc white. In this way, it prevents an unfavorable pH effect. In soap where it is desired to avoid the presence of free alkali, that is, where the soap is brought as near neutral as possible, zinc white is especially valuable in preventing decomposition of perfume materials. It also tends to prevent any darkening of the soap. Any zinc salts formed by chemical reaction are difficultly soluble in water. A. Foulon. *Fette und Seifen* **48**, 148 (1941).

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pH of Modified Soda-Soap

pH measurements were made on solutions of modified soda, and modified soda plus soap, with the hydrogen electrode, the glass electrode, and with the Taylor and Hellige colorimetric equipment. Both concentration and temperature affect the pH values of the modified soap solutions; values increase with increasing concentration from 0.012 gram per liter to 0.6 gram per liter, then decrease from 0.6 gram per liter to 12 grams per liter,—values decrease with an increase in temperature from 25 to 60° C. The table shows these values for concentrations of 0.03 and 0.3 per cent.

% Conc. Modified Soda	*pH Values at* 25°C.	40°C.	60°C.
0.03 (0.3 g./l.)	10.00	9.81	9.60
0.3 (3. g./l.)	9.92	9.77	9.60

These figures show that pH changes of modified soda solutions in the range of concentrations of most interest to the laundryman (0.03 to 0.3 per cent), are of little significance,

and that changes with temperature are greater.

The change of pH with temperature for a solution containing 0.1 per cent of soap and 0.03 per cent of modified soda, was as follows, compared with corresponding determinations on 0.1 soap solution alone.

	pH at 25°C.	40°C.	60°C.	80°C.
Modified soda plus soap	10.18	9.92	9.60	9.43
Soap alone	10.4	10.0	9.50	9.24

While the presence of modified soda decreases the pH value of soap solution at room temperature and at 40° C., at higher temperatures (60-80° C.), it increases the pH value.

The authors conclude that the small pH differences with different concentrations of builder do not correspond to the differences in effective washing capacity shown at these concentrations, and that such conditions do not permit of practical control of detergent solutions by any form of pH measurement. They deem simple titrations a far better primary means of concentration control in this field, than pH measurements.

Results obtained with the Hellige and Taylor methods did not agree with those determined electrometrically. To test this further, samples of a 0.3 per cent solution of modified soda, giving a pH value of 9.92 at 25° C. by careful check methods, were sent to 32 laundries for pH determination. Of the returns, 10 measurements by the Hellige method ranged from 9.5 to 10.5, and 8 by the Taylor method ranged from 9.8 to 11.0. Except for one return at 11.0, 7 of the 8 Taylor measurements ranged from 9.8 to 10.0. Three glass electrode determinations were from 9.8 to 9.9. Of the colorimetric results about half were considered satisfactory. The general conclusion drawn with respect to colorimetric measurements was that they are misleading at the low builder concentrations of laundry interest because of inaccuracy, and because of inability to relate the values obtained to those prevailing under washing conditions. L. R. Bacon, J. W. Hensley, and T. H. Vaughn. *Ind. Eng. Chem.* **33,** 723-30 (1941).

Mixed Detergent Beads

Fatty alcohol sulfates, used as calcium-resistant detergents in the textile industry, often carry considerable sodium sulfate, which has no capillary-active action of its own and which tends to make the product form fine dust. Mixtures can be prepared of much greater efficiency by addition of suitable compounds such as certain phosphates and sulfonated compounds, which can be dissolved in water and then sprayed in solution or paste form to give a non-powdery bead structure.

As an example, 45 parts by weight of a technical fatty alcohol sulfate which contains 70 per cent of the sodium salt of a suitable sulfuric ester and 5 per cent of sodium sulfate, are mixed with 25 parts by weight of calcined tetrasodium pyrophosphate, and 30 parts of the sodium salt of naphthalene sulfonic acid. The mixture is stirred to a paste with water, then sprayed to give a hollow bead-shaped product which does not powder to a fine dust. The product is a much more powerful cleansing agent than the usual fatty alcohol sulfate. W. Hentrich, C. Lainau and A. Mertens, to Henkel & Cie G.m.b.H. German Patent No. 685,428; through *Fette und Seifen* **48,** 95 (1941).

Titration of Soap Solution

For the electrometric titration of soap solution, the hydrogen electrode is unsuitable, the antimony electrode is satisfactory, but the glass electrode is best. The results were slightly high in respect to fatty acids and low for Na_2O. In the titration of soap with mineral acids, the base formed by hydrolysis of the soap is first neutralized, then the neutral soap is changed into "acidic" soap by the exchange of cations. Next the acidic soap is decomposed by exchange of residual sodium ions for hydrogen ions, and finally, the sodium carbonate and sodium bicarbonate are decomposed. These stages are represented in the titration curve by four maxima. A. P. Vishnyakov and N. A. Rodicheva. *J. Applied Chem. (U.S.S.R.)* **13,** 1517-22; through *Chem. Abs.*

pH Effect on Detergency

The variation of detergent power as measured by the ability of the detergent to remove olive oil from wool, of a few commercial detergents and sodium oleate soap, was studied. An increase of pH has only a small effect in increasing the detergency of solutions of agents of the sulfated fatty alcohol type, except Igepon T, but a large effect on sodium oleate solutions. A decrease in pH results in poorer detergency, however. The results can be interpreted in terms of adsorption of detergent at the wool-water interface.

When sodium chloride and sodium carbonate were added separately to soap solutions, the increase in pH due to the carbonate had a marked effect on the detergent power of the soap. It is believed that increase in pH gives a greater proportion of soap anions in the surface, resulting in more rapid detergent action. R. C. Palmer. *J. Soc. Chem. Ind.* **60,** 60-2 (1941).

Fatty Acid Distillation

Apparatus for fatty acid distillation is described in which neutral oil is split and separated into its component acids. Where the stock is cottonseed oil, the composition of the distilled fatty acids is approximately 50 per cent linoleic acid, 25 oleic acid, and 25 palmitic acid. Substantially pure palmitic acid is separated. Armour & Co. British Patent No. 533,847.

Tylose for Soap Powder

A new Tylose HBR is a light-colored cellulose product offered as somewhat moist flakes. Its solution is stable and resistant to boiling and to salts. For addition to soap powder it is suitably mixed first with calcined soda, in proportions of 15 parts of Tylose to 45-90 parts of calcined soda ash. Hermada. *Seifensieder-Ztg.* **68,** 114 (1941).

Detergency and pH

IT IS important that wash waters have the proper pH so that surface tension will be a minimum, interfacial tension a minimum, contact angle a minimum, and solid-suspending power and detergent action a maximum. Of the two methods most used for measuring the pH of alkaline solutions, colorimetric, and electrometric with the glass electrode, colorimetric methods present certain difficulties, particularly with soap solutions. The large soap micelle may affect the indicator and change its color, also the indicator may change the pH of the solution.

The hydrogen electrode is the true reference electrode for making reliable pH determinations, but it is not so much used because of practical disadvantages. However, it does serve to show up errors in other pH methods. A solution containing 0.012 gram per liter of modified soda, soda ash plus sodium bicarbonate, gave a pH with the hydrogen electrode of 9.15, but by the colorimetric method, using a Taylor Comparator, only 7.7, and with a Hellige Comparator, 8.1. Similarly soap flake solution containing 1 gram per liter,—about 0.1 per cent, the concentration used in washing,—gave pH 10.36 with the hydrogen electrode, 9.5 with the Taylor Comparator, and 9.7 with the Hellige Comparator. When 6 grams per liter of modified soda was added to the soap solution, the pH was 9.83 with the hydrogen electrode, 10.0 with the Taylor Comparator, and 10.1 with the Hellige Comparator, showing better agreement in the higher concentration.

Although the glass electrode possesses many advantages in simplicity in use, nonpoisoning of electrode surface etc., it has had the disadvantage of showing large salt errors in strongly alkaline solutions. However, Beckman of the National Technical Laboratories in Pasadena, recently discovered a glass which does not exhibit large errors in alkaline solutions; the glass is probably made of lithium oxide instead of sodium oxide.

Curves in which concentration is plotted aainst pH show that if borax is added to a soap solution originally having a pH value of 10.2, the pH falls, since the pH of borax solution itself is less than 10.0. If trisodium phosphate is added, the pH rises, because trisodium phosphate is more hydrolyzed than soap and gives a greater alkalinity to the solution. Temperature has a marked effect. The pH of a 0.5 per cent soap solution at 25° C. is 10.4, at 40° C. 10.0, at 60° C. 9.48, and at 80° C. 9.24.

Relation of pH to detergency is shown by practical tests in which brightness of fabric samples was determined after five washings with soap alone, and five washings with soap plus builder. Adding borax to the soap solution decreased brightness; adding caustic soda also decreased brightness. Addition of trisodium phosphate and of soda ash increased brightness, which reached a maximum and then fell off as concentration increased. Maximum brightness was obtained at pH 10.7. Malcolm Dole. *Am. Dyestuff Reporter* **30,** P231-8 (1941).

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Value of Wetting Agents

To judge the value of wetting agents, of which numerous brands are sold, many of them with conflicting claims, it is necessary to know how the agent is to be used. There appear to be two distinct types of wetting, namely, spreading and penetration. Spreading depends on lowering the interfacial tension between the surface to be wet and water. Penetration depends somewhat on this, but also on other factors, one being the size of the colloidal particles of the wetting agent; if this particle size is too great, the particle does not seem capable of penetrating the interior of a textile fiber.

The difference in properties is demonstrated by placing small swatches of canvas on the surface of a solution containing, in one case, a good spreading agent, in the other, a good penetrant. The swatch dropped on the solution containing the spreading agent will immediately become wet on the upper surface without sinking, while the other will remain dry on the upper surface until water penetrates from below, when it will sink, often long before the swatch which appeared to be wet first.

The efficiency of wetting agents should be tested in the laboratory first before an attempt is made to experiment with plant methods. The Draves test in which the sinking time of yarn in the solution to be examined, is measured under standard conditions, appears to be the most significant laboratory method of evaluation. The test is preferably made under the same conditions of temperature and concentration that will be used in the plant in practice. Robt. R. Ackley. *Rayon Textile Mo.* **22,** 243-4 (1941).

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Sources of Saponin

Soapwort, *Saponaria offic. rubra*, contains up to 4 per cent of saponin and also the glucoside of saporubic acid. The finely powdered root is recommended for use with a 5 per cent soda ash solution as a detergent. Rupturewort, *Herniaria glabra*, contains much saponin. An aqueous extract is an excellent hand cleanser and makes the skin soft and supple. The horse chestnut seed, *Aesculus hippocastanum*, contains 10 per cent of saponin. Ivy leaves, *Hedera helix*, contain about the same amount, which, with water and a little soda ash, serves to wash wool. A number of other weeds are listed as sources of saponin. E. Wagner. *Seifensieder-Ztg.* 68, 35 (1941).

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Fatty Acid Recovery

A mixture of an alkali soap and a concentrated solution of an alkali metal salt of an inorganic acid is treated with a concentrated acid such as sulfuric acid. The deposited fatty acids are separated and the precipitated alkali metal salt removed from the aqueous solution without evaporation, as by suction filtration. Martin Luther, to Jasco, Inc. U. S. Patent No. 2,228,925.

Molecular Distillation

A number of fats were subjected to molecular distillation by the discontinuous process, the fats being separated in this way into four fractions and a residue. With coconut oil having the following characteristics originally (acid number 8.6, sap number 258.2, iodine number 9.4, melting point 24.5° C.) the following fractions were obtained:

Temp.	*Amount*	*Acid Number*	*Saponification Number*	*Iodine Number*	*Point Melting*	*Appearance*
to 190°C.	32%	14.4	279.0	3.2	.....	Light yellow, semi-liquid
to 210°C.	35%	0	266.7	3.9	27.1°C.	White, solid
to 240°C.	12%	0	250.8	10.6	28.5°C.	White, solid
to 265°C.	11%	0	225.7	24.8	28.2°C.	White, solid
Residue	11%	0	203.5	48.2	.....	Brown, thick liquid

Palm kernel oil behaved similarly to coconut oil, all of the free acid distilling in the first fraction and colorless solids being obtained after the first fraction had been removed.

Palm oil high in carotene had the following constants originally: Acid number 23.6, saponification number 195.4 and iodine number 55.5. Changes on distillation were as follows:

Temp.	*Amount*	*Acid Number*	*Saponification Number*	*Iodine Number*	*Appearance*
to 170°C.	10%	192.2	203.7	61.0	Light yellow
to 210°C.	5%	5.4	189.1	60.5	Deep red
to 242°C.	34%	2.8	201.8	49.7	Pale yellow
to 250°C.	42%	1.2	201.6	53.7	Almost white
Residue	9%	1.0	188.8	77.2	Dark, half liquid

The first fraction consisted chiefly of free fatty acids, with small amounts of glycerides. The second distillate contained most of the carotene. The third fraction showed the smallest iodine number, but the saponification number was higher than that of the second fraction; this contained mostly low-molecular weight saturated glycerides. The residue contained a strongly unsaturated portion which exhibited a high molecular weight.

Unlike the above fats, soybean oil showed no important changes on fractional distillation; changes in the values of the constants were only slight. The first fraction was yellow, the next three light in color, and the residue pale green. H. P. Kaufmann and W. Wolf. *Fette und Seifen* **48,** 51-3 (1941).

Determination of Phosphates

A method previously described for the determination of meta-, pyro-, and orthophosphoric acids has been applied to the determination of the sodium salts of these acids. The samples are dissolved in standard acid and titrated with standard alkali to a monobasic, dibasic, and tribasic endpoint with the aid of different indicators. Polyphosphates, if present, titrate as mixtures of meta- and pyrophosphates.

In methods where the estimation of phosphate radicals is accomplished by precipitation with metallic ions, consideration cannot be confined to acid radicals of the meta-, pyro-, and orthophosphates but must be extended to the phosphate complexes or polyphosphates. In the presence of polyphosphate, analysis by acidimetry and by precipitation introduces a potential source of confusion in terminology. The determination of phosphate radicals using metal salts as precipitants, may be subject to interference because of the metallic ion binding power of sodium meta- and pyrophosphate melts. These methods for pyrophosphate using zinc ion are exposed to inaccuracy in the presence of polyphosphate. Arthur B. Gerber and Francis T. Miles. *Ind. Eng. Chem.*, Anal. Ed. **13,** 406-12 (1941).

Non-fat Washing Agents

Fat-free washing agents were studied with respect to their cleansing action on standard soiled samples, loss of tensile strength, and amount of ash left on the washed material. A number of fat-free agents now used in Germany were compared in these tests with soad ash, and gave very favorable results on this basis. One product when compared with soap gave favorable results after 30 washings with the two kinds of detergents, in water of 5° of hardness. However, for both laundry and household practice, the recommendation is made that the last wash bath, or the last suds, carry either soap solution or fatty alcohol sulfate as detergent, although the amount can be reduced below that previously used. Edmund Walter. *Fette und Seifen* **48,** 136-7 (1941).

Binary Mixtures of Acids

In connection with a study of the separation of the fatty acids of soybean oil by crystallization, it appeared desirable to determine whether mixtures of the unsaturated acids, oleic, linoleic, and linolenic, showed compound formation or eutectics, and if so, to determine their compositions and melting points.

The oleic-linoleic system has eutectics for the *alpha* and *beta* forms of oleic acid of 75.2 and 76.3 mol per cent linoleic acid at —10.0°C. and —9.8°C., respectively. Linoleic and linolenic acid mixtures show only melting points intermediate between those of the pure acids. The oleic-linolenic system has eutectics for the *alpha* and *beta* forms of oleic acid of 82.7 and 85.5 mol per cent linolenic acid, at —15.7°C. and —15.1°C., respectively. H. W. Stewart and D. H. Wheeler. *Oil & Soap* **18,** 69-71 (1941).

Bleaching Earths

A study of a number of adsorptive earths for bleaching oil showed that between 1.75 and 3.75 per cent of natural bleaching earths were needed, based on the amount of oil, to give a bleaching effect of 90 per cent with rapeseed oil. With a highly active bleaching earth an addition of only 1.5 per cent of earth was needed to give the same effect. Oils vary a great deal in the ease with which they can be bleached by this means. Eduard Erdheim. *Seifensieder-Ztg.* **68,** 148 (1941).

PRODUCTS AND PROCESSES

Highly Filled Soap

A soap mass containing sodium silicate as filler can be homogenized with the aid of a solution of sodium thiosulfate. By this means, the fatty acid content of the soap can be reduced to 30 per cent without causing the soap to effloresce or to lose its form. W. Lorgus. *Deutsche Parfümerie Ztg.* **27,** 87 (1941).

Dish-washing Compound

A composition for washing dishes and cutlery contains 40 per cent of hydrated trisodium phosphate, 26 of soda ash, 25 of hydrated sodium metasilicate, 5 of hydrated sodium sulfite, 2 of sodium hexametaphosphate, and 2 per cent of soap powder. P. D. Liddiard. British Patent No. 528,964.

Soap Cream

A soap cream is prepared by mixing 20-30 parts of stearic acid with 30-60 parts of glycerin and 90-120 parts of water, saponifying with caustic potash. To this is added 1-1.5 per cent of potassium bicarbonate, 0.5-2 per cent of sodium phosphate, and 1.5-2 per cent of castor oil fatty acids. W. Maeder. German Patent No. 674,135; through *Deutsche Parfümerie Ztg.* **27,** 64 (1941).

Soap Preservative

To inhibit deterioration there is added to soap 0.01-1 per cent of tri-ortho-tolyl phosphite or di-para-tolyl phosphorous acid monochloride, or closely related compound. George D. Martin, to Monsanto Chemical Co. U. S. Patent No. 2,234,379.

Soap Mixture

The sulfonation product of a higher alcohol is mixed with fatty acid and heated to dissolve the alcohol sulfonate. Mineral alkali sulfate, insoluble in the fatty acid, is removed. The fatty acid is neutralized with alkali to form soap. S. Kawai, Japanese Patent No. 133,770.

Germicidal Detergent

Dry, stable calcium hypochlorite containing more than 50 per cent of available chlorine and not more than 10 per cent of calcium chloride, is mixed with a synthetic, organic, water-soluble detergent which does not form a precipitate with calcium ion. The products are stable detergents having germicidal activity. V. M. Kalusdian, to Mathieson Alkali Works. British Patent No. 530,040.

Window Cleaner

Jelly-like detergents which will not flow to any great extent when applied to vertical glass surfaces contain an intimate mixture of 8 gallons of hydrofluoric acid, 3 gallons of hydrochloric acid, 10 gallons of water, 9.5 pounds of glue and 12.5 gallons of glycerine. The amount of glycerine can be reduced by using a mixture of glue and flour with it. W. Franklin. British Patent No. 532,816; through *Brit. Chem. Physiol. Abs.*

Protein Products in Soap

Vegetable or animal proteins are digested partly with papain at pH 5, treated with antiseptic, and mixed with fatty acid. The mixture is converted by alkali to soap. I. Hagiwara and H. Noro. Japanese Patent No. 133,273.

Soap Recovery

Spent soap liquors of a silk dye works are decomposed with sulfuric acid. The acid liquor should be entirely clear and show a slight excess acidity to methyl orange. After the treated liquor has stood for 5-6 hours the oleic acid is drawn off and subjected to further clarification in special apparatus. From the clarified oleic acid, soap is regenerated for further use. V. V. Skvortsov. *Shelk* 8, No. 3, 35-6; through Chem. Abs.

Sperm Oil Detergent

Sperm oil is treated with hypochlorous acid in the presence of water to form a hydroxychloro derivative, together with ester and unsaturated acid. The oily product on top is treated with a sulfonating agent to obtain a sulfonated hydroxychloro derivative or its condensation product. T. Maruyama and Y. Kawakami. Japanese Patent No. 133,774.

Cleaning Compound

Soluble magnesium salts of sulfonated univalent aliphatic alcohols with more than 11 carbon atoms are used in cleaning compounds. Böhme Fettchemie-Gesellschaft m.b. H. German Patent No. 690,628.

Zinc White in Soap

Zinc white is especially suitable as a whitening agent in soap. It is available in pure form and in a very finely divided condition. In addition to whitening soap it serves as filling agent. It tends to neutralize free acidity both chemically and physically, the latter by adsorption due to the large surface area of the particles. Zinc white (ZnO) does not undergo decomposition in contact with soap. As an inert pigment it has some tendency to cut off light waves which might have a deteriorating influence on the soap. A. Foulon. *Seifensieder-Ztg.* **68,** 113-14 (1941).

Emulsified Soap

Emulsified soap for use by the textile industry is prepared by heating fats or oils with caustic potash and butyl alcohol or amyl alcohol, to saponify about 60-80 per cent. After 10 hours the mixture is poured into warm water to form an emulsion. T. Matuda. Japanese Patent No. 133,345.

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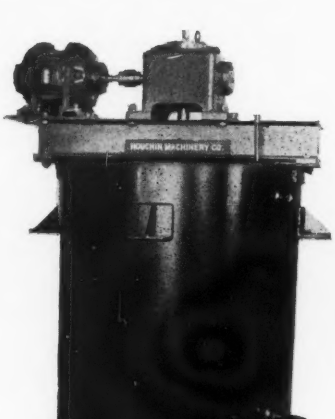

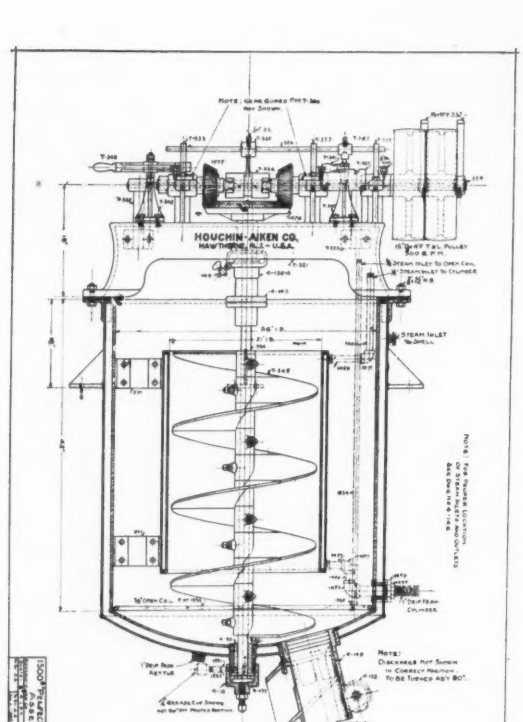

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No. 2,244,547, Parasiticide, patented June 3, 1941, by William P. ter Horst, Packanack Lake, N. J., assignor to United States Rubber Co., New York. An insecticide preparation containing as an active ingredient a product obtainable by the reaction of an aliphatic ketone and ammonium thiocyanate.

No. 2,245,052, Liquid Cleaning Composition, patented June 10, 1941, by Paul A. Salz, New York. A liquid cleansing composition comprising the following ingredients in the approximate proportions indicated, the liquid ingredients being by volume and the solid ingredients being by weight:

	Per Cent
Water	94
Oxalic acid	5⅝
Potassium chromate	¼
Glycerine	⅛

No. 2,245,536, Process of Making, Removing, and Processing Soap and the Like, patented June 10, 1941, by Benjamin H. Thurman, Bronxville, N. Y., assignor to Refining, Inc., Reno, Nev. A process of removing volatile material from a product including both volatile and non-volatile materials, which process includes the steps of: introducing a stream of the product into a vapor-separating chamber while at a temperature above the boiling point of the volatile material at the pressure existing in the vapor-separating chamber and while reducing the pressure thereon whereby vapors of the volatile material separate from the non-volatile material in this chamber; continuously removing the separated vapors from the vapor-separating chamber in such manner as to maintain a partial vacuum therein while collecting von-volatile material in the chamber in comminuted condition; and removing the comminuted non-volatile material from the chamber in such manner as not to impair the partial vacuum and without interruption to the concurrent removal of vapors from the vapor-separating chamber.

No. 2,246,524, Germicide, patented June 24, 1941, by Lucas P. Kyrides, Webster Groves, Mo., assignor to Monsanto Chemical Co., St. Louis. An agent for the control of bacteria, which comprises a compound selected from the group consisting of N-alkylated alkylene polyamines and salts thereof with acids, the N-al-kylated alkylene polyamines corresponding to the general formula

$$X—NH—R—(NH—R)_n—NH—Y$$

in which R is an alkylene radical selected from the group consisting of ethylene, propylene and trimethylene radicals, n is a number from 0 to 4, and X and Y are selected from the group consisting of hydrogen and alkyl radicals at least one of which is an alkyl radical having not less than 12 and not more than 16 carbon atoms.

Enzyme Detergent Action

The use of enzymes in cleaning agents has been suggested from time to time, but not much has been done about it. The most useful enzymes for the purpose are trypsin, which splits protein in alkaline solution, and lipase, which splits fats, also in alkaline solution.

The use of these enzymes in soap would increase materially its detergent ability in the presence of objectionable protein bodies, for instance in the spotting of garments in dry cleaning, particularly silks and rayon; protein and perspiration in the soil could be removed without any ill effects on the fabric. The loosened particles of dirt could then be easily removed in the ordinary way by the use of a stronger solution of soap. It is very possible that enzymatic soap preparations would prove useful for hair shampoos and special complexion soaps. To achieve maximum efficiency, the presence of a small proportion of ammonia is recommended with trypsin. *Am. Perfumer* 42, No. 6, 55 (1941).

Fatty Acid Still

A still for the distillation of fatty acids contains a heating chamber, a separating chamber above and connecting with the vapor space of the heating chamber, and an annular cooling zone around the separating chamber. Means are supplied for heating and for cooling the respective chambers, and for collecting the liquid condensed in the cooling chamber. A high vacuum can be maintained in the still. Martin H. Ittner, to Colgate-Palmolive-Peet Co. Canadian Patent No. 397,291.

Tall Oil in Soap

Not more than 25 per cent of tall oil should be incorporated in cake soap. A great difference in properties appears, according to whether crude or purified tall oil is used. Tall-oil distillate foams better and is a stronger emulsifying agent in soap than crude tall oil. Surface tension is also higher in crude tall-oil soaps than in those made from fatty acids or from purified tall-oil. Paste soap made from tall-oil, because of its high viscosity, is too sticky and should be corrected by the inclusion of potassium chloride or of linseed-oil or soybean-oil fatty acids. Tall-oil distillation should be carried out in copper, aluminum or stainless steel equipment. T. Ruemele. *Seifensieder-Ztg.* **68**, 182-3 (1941).

Refining Palm Oil

Oils containing carotenoid or similar pigments, such as palm oil, are bleached prior to ordinary alkaline refining by treatment at 165-255° C., preferably under a vacuum of 10-20 mm. of mercury, with 0.02-0.1 per cent of hypophosphorous acid or monosodium hypophosphite. Lever Bros. & Unilever, Ltd. British Patent No. 531,047.

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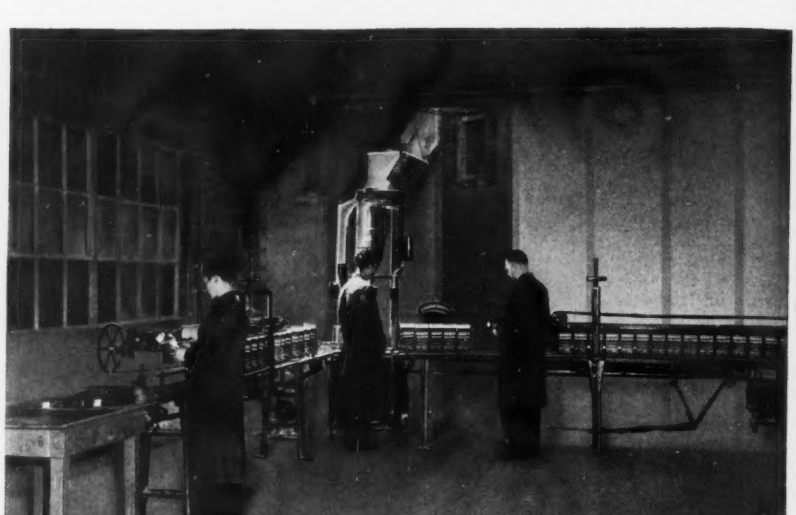

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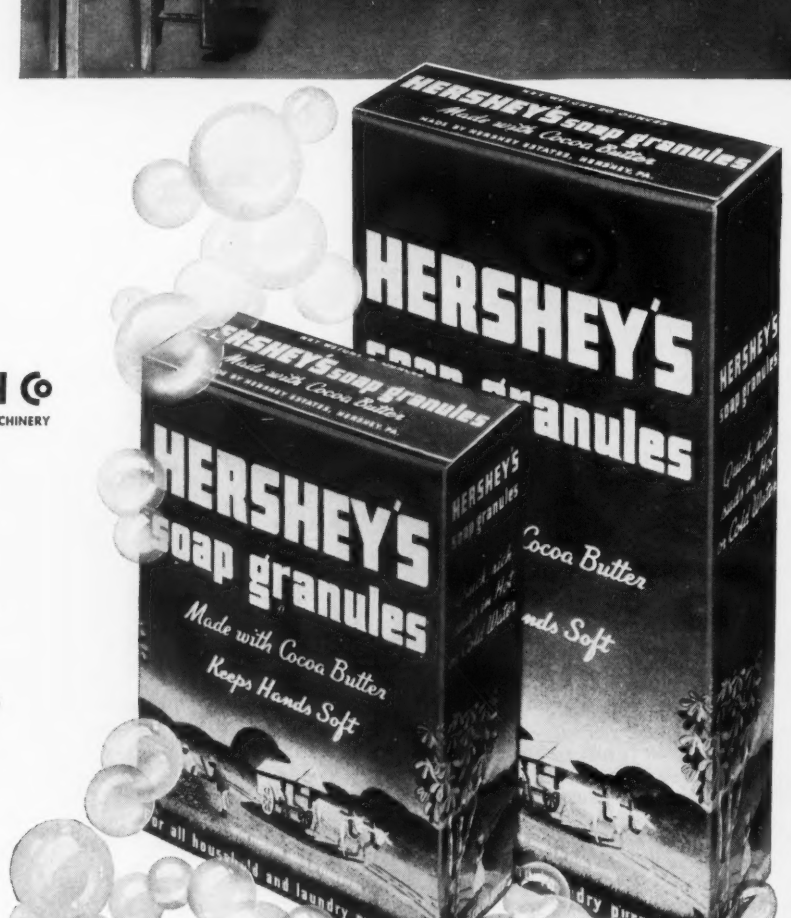

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NEW EQUIPMENT

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

830—Rotary Pumping Unit

A new pump with a gearhead motor drive which will be furnished as standard units in capacities from 20 GPM to 450 GPM has just been added to the line of Blackmer Pump Co., Grand Rapids, Mich. The new unit is said to be considerably smaller than other rotary pumps of comparable capacity and pressure. The basic design embodies the Blackmer bucket (swinging vane) impeller. Refinements in intake and outlet ports and in the shape of the pump chamber have increased the overall efficiency of the pump and made its operation much quieter, according to the manufacturer.

831—Protinols

Protinol Products, Inc., New York, has just issued a bulletin entitled "The Protinols—Their Constitution and Properties with Uses and Application in the Cosmetic and Soap Industries" in which the products are described as surface-active agents which are the condensation products of high molecular protein derivatives and fatty acid. Included in the bulletin are sample formulations showing how "protinols" may be used in the manufacture of shaving creams, both brushless and lathering, shampoos, liquid soap, medicated and toilet soaps, dentifrices and bubble baths.

832—Essential Oils

Dodge & Olcott Co., New York, has just brought out its latest wholesale price list of essential oils, aromatic chemicals, balsams, gums, insecticide concentrates and other basic materials for the soap and insecticide industries.

833—Folder on Polishing

"Cleaning and Polishing Metals in the Home" is the title of an 8-page mimeographed circular prepared by the Agricultural Extension Service of the University of Vermont, Burlington, Vt. Charlotte P. Brooks, the author, discusses the different kinds of metal cleaning compounds, gives suggestions for cleaning metals and specific directions for polishing the common household metals.

834—Floor Maintenance

Federal Varnish Co., Chicago, has just issued a new bulletin on maintenance materials for all types of floors. "Floor Finishes—What to Use and How to Use It," is the title of the 32-page booklet which tells in detail recommended methods of caring for, cleaning and waxing floors. Covered by the booklet are new wood floors, gymnasium floors, linoleums, rubber, asphalt tile, mastic tile, cork tile, cement floors and hard mastic floors, terrazzo, masonite, terrazzine, and marble floors. Federal also has just issued a revised price list and a suggested resale price list of its products.

Describe Hospital Soap Use

The per capita consumption of soap in Winfield (Ill.) Tuberculosis Sanitorium amounts to an annual figure of 42.5 pounds it is revealed in a bulletin released by the hospital in conjunction with the construction of a new modern building at the institution. Exclusive of bleaches, caustics and other chemicals used in the hospital, the yearly soap consumption of a Winfield patient consists, it is said, of 16.5 pounds of soap flakes for laundry, 10 pounds of flakes for kitchen and general scrubbing, 10 pounds for the electric dishwashing machine, 3.75 pounds of hand soap, 2 pounds of liquid soap and 0.26 pound of miscellaneous bar soap. Soap, it is said, is considered highly important in the handling of tuberculosis patients. In the new building, all parts of the interior and furnishings are made of materials adaptable to washing with soap and water, it is said.

Corrects Indian Impressions

Dr. Sadgopal, Hindusthan Aromatics Co., Allahabad, India, in a letter to the editor, comments on a news item entitled "Speaks on Indian Soap Manufacture," in the March issue of *Soap & Sanitary Chemicals*, based on a talk by Dr. Ilona Taussky. According to Dr. Sadgopal, practically all soap manufacturers in India in up-to-date plants *are* using tallow in soap manufacture despite the fact that the use of tallow is taboo from the Hindu point of view. Moreover, he indicates that Calcutta as well as Bombay is an important center of soap manufacture in India, and mentions that Lever Brothers Co. has its "Sunlight" soap plant at Calcutta. Refuting an impression made by Dr. Taussky, he adds, "I could not understand (what was meant by) the complications of the caste system which accompany oil refining in India."

NOPCO Earnings Equal 1940

National Oil Products Co., Kearny, N. J., has just reported a net income of $384,250, equal to $1.78 a share, for the first six months of 1941. For the first six months of 1940, income was $356,094 and earnings were likewise $1.78 a share.

Int. Agricultural Corp. Moves

International Agricultural Corp., Chicago, recently moved to new quarters at 4032 S. Wentworth Ave. The company was formerly located at 3600 S. Morgan Street.

Detergent Chemical Tests

THE following table gives in condensed form the characteristics of a number of alkalies commonly used in the laundry and elsewhere for detergent purposes.

	Total Na_2O in per cent	*Active Na_2O in per cent*	*pH Range*
Caustic soda	76	76	Above 12
Orthosilicate	53	42-46	Above 12
Sodium sesquisilicate	36.9	28-31	11.1-11.6
Sodium metasilicate	29.2	19-22	10.8-11.4
Trisodium phosphate	24.5	8.2	10.3-10.6
Soda ash	56	28	10.0-10.4
Modified soda	41-44	11.0-13.5	9.0-10.0

The ability of alkalies to produce the suds necessary for good washing also affects soap economy. The table below shows the approximate volume of lather produced by the various builders,—25 cc. solutions containing 0.1 per cent soap and 0.1 per cent alkali.

Alkali	*Volume of Suds*
Caustic soda	50
Sodium orthosilicate	45
Sodium sesquisilicate	45
Sodium metasilicate	40
Trisodium phosphate	40
Soda ash	30
Sodium sesquicarbonate	25

Titration is very useful in charting the steps in the washing process and gives a means for positive washroom control. A slide comparator together with a simple control kit containing the following supplies is extremely useful.

Washroom Control Kit

A 3 cc. pipet
A 10 cc. pipet
Three or more glass testing bottles marked at 25 cc.
Ten dropper-stopped, 2-3 ounce bottles capable of delivering 20 drops per cc., filled with the following:

Phenolphthalein	0.1 Per Cent
Methyl orange	0.1 Per Cent
Hydrochloric acid	1.0 Normal
Hydrochloric acid	0.1 Normal
Sodium hydroxide	0.1 Normal
Potassium iodide	20 Per Cent
Acetic acid, glacial	
sodium thiosulfate	1.0 Normal
Standard soap solution	3.4 Per Cent
Sour range indicator	0.1 Per Cent

Using this kit, the results shown in accompanying Report were obtained with it and a slide comparator. by a laundry superintendent.

In these tests, 25 cc. of sample solution were used. In the first titration 4 drops of Normal hydrochloric acid were required to bring the solution to phenolphthalein neutrality, 8 drops of the acid to bring it to methyl orange neutrality. There was no phenolphthalein alkalinity in the third and fourth rinses. *Laundry Age* **20,** No. 12, 159-62.

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Salt Effect on Detergency

The effect of neutral salts on the detergent power of a substance such as a fatty alcohol sulfate, is not simple. For a given detergent at a certain concentration, the detergent power of the solution at first increases as the salt concentration is raised and then at higher salt concentrations decreases again.

This increase in detergent power, which depends only on the valence of the added cations, for anionic detergents, is explained on the theory that in the presence of salts the potential energy of the detergent ions in solution is lowered by the concentration around them of ions of opposite sign (Debye-Hückel effect), but the potential energy of the detergent ions in the surface is lowered to a much greater extent. The amount of detergent in the surface in equilibrium with a given bulk concentration depends on the difference in potential energy of a detergent ion in the two places. Thus the greater lowering of the potential energy of the molecules in the surface will result in a displacement of the equilibrium in favor of the surface, giving greater surface pressures and increased detergency. The subsequent decrease in detergent power at high salt concentrations depends on both the valence and the nature of the added cations. Bivalent ions exert the same effect as univalent ions, but at a much lower concentration. R. C. Palmer. *J. Soc. Chem. Ind.* **60,** 56-60 (1941).

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Aldehyde Soap Perfumes

The higher aldehydes can be used in soap perfume if combined with the proper fixatives. Octyl aldehyde has an odor similar to that of lemons or oranges. To fix this odorant oil of rue and methyl nonyl ketone are suitable. They are similar in odor to octyl aldehyde and need to be used in small amounts only. Nonyl aldehyde gives more of a flower-like odor, suitable in rose compositions. The fixative to be used can be chosen to accentuate some one desired effect. In rose compositions geranium oil, storax, cinnamic alcohol, and phenyl acetaldehyde dimethyl acetal are used. Methyl naphthyl ketone, cananga oil or terpeneless petitgrain oil give a Neroli effect. T. Ruemele. *Seifensieder-Ztg.* **68,** 163-4 (1941).

Washroom Control Report

	O.R. and O.B. Flatwork				
	Phenolphthalein	*Strength*	*Methyl orange*		
Operation	*Endpoint*	*of HCl*	*Endpoint*	*pH*	*Temperature*
Break	4 drops	1.0	8 drops	10.6	96°F.
Suds	4 drops	1.0	7 drops	10.8	143°F.
1st rinse	13 drops	0.1	27 drops	...	154°F.
2nd rinse	3 drops	0.1	13 drops	...	156°F.
3rd rinse	0 drops	0.1	7 drops	...	154°F.
4th rinse	0 drops	0.1	4 drops	...	123°F.
Sour bath	.....	0.1	1 drop	5.0	111°F.
Blue bath	.....	...	.....	6.4	85°F.
Extractor sample	.....	...	.....	6.8	.....

Water hardness 5.8 grains per gallon of $CaCO_3$
Bleach 0.45 per cent available chlorine.
Water Bicarbonate Alkalinity 30 parts per million of $CaCO_3$

Washing Agent Tests

In order to test the efficiency of the new detergents used in Germany in the commercial laundries, standard washing procedures were developed. It was endeavored to make the standard soil as inclusive as possible of the kinds of soil encountered on soiled garments and linens. For this purpose, two mixtures were prepared, as follows:

I. 30 grams of oil—heated
5 grams of wool fat—heated
1 egg yolk
1 egg white

II. 250 grams of milk
20 grams of cocoa
2 grams of soot
4 grams of starch
10 grams of sugar

These are stirred together cold, then heated to boiling and diluted with 250 cc. of water.

Mixtures I and II are stirred together in the proportion of 1:9 and applied to the sample strips of fabric. After being washed mechanically under fixed conditions, the strips are tested for whiteness with the Pulfrich photometer.

Of three washing agents, two were more or less standard before the present war, the third was a war-substitute product. The first showed excellent detergency, the second, rather poor detergency, and the third gave such poor results as to appear unsatisfactory for the purpose. All three agents gave maximum cleansing action at a concentration of 0.5-1 per cent. G. Gehm. *Seifensieder-Ztg.* **68,** 159-60, 170, 181-2 (1941).

Soap Mixture

Phase-rule studies of single pure soaps have been made previously. To study a mixture, a constant mixture of equal weights of sodium palmitate and sodium laurate was examined with different percentages of water. A comparison of the curves with those for the pure soaps shows that the mixture tends to follow a behavior which would be an average of the individual curves. Probably the outstanding difference is that the peak for middle soap is higher than either of the individual peaks.

Temperatures below which soap curd appears, adhere more closely to the curve for sodium laurate. Mixed micelles of smaller size, less orientation, and greater solubility, must be produced by the occurrence of the shorter laurate molecules among the longer homologs, an example of mutual solubilization. J. S. McBain and S. A. Johnston. *J. Am. Chem. Soc.* **63,** 875 (1941).

TSPP Determination

Many laboratories report satisfactory results for the determination of tetrasodium phyrophosphate in soap, by the following method: Prepare an aqueous solution of the alcohol-insoluble ingredients of the soap sample and adjust the pH to 3.8 by adding glacial acetic acid, preferably by means of a glass electrode. Add a solution of zinc sulfate and titrate the sulfuric acid liberated, with standard alkali. M. L. Sheely. *Oil & Soap* **18,** 82-3 (1941).

Study of Antioxidants

The quantitative relationship of the following antioxidants is shown in terms of the ratio of the induction period of lard plus added inhibitor, to that of lard alone:

	Ratio
Pyrogallol	60
Hydroxyhydroquinone	60
Catechol	41
Hydroquinone	38
alpha-Naphthol	22
1, 2, 3, 4-tetrahydroxybenzene	20
Orcinol	4
Phloroglucinol	3
beta-Naphthol	1.6
Resorcinol	1.5

From the number of acids studied, antioxidant activity of these seemed to depend on the presence of free hydroxyl groups capable of splitting off hydrogen ions. H. S. Olcott. *Oil & Soap* **18,** 77-80 (1941).

Fat from Wax Residue

The residue which contains fatty acids and a considerable amount of higher alcohols from the saponification of wax to separate higher alcohols, is decomposed with acid. It is then hydrogenated in the presence of catalyst to an iodine number of five or lower. The product is distilled in vacuo or recrystallized, or pressed, to give a white, odorless fatty material. H. Nozaki. Japanese Patent No. 132,620.

Water Sterilization

Small hypochlorite - sodium perborate tablets can be added to water as sterilizing agents. For ordinary drinking water of reasonable clarity and organic content, one tablet in one pint produced safe water in one minute; cultures were employed ranging from 4,000,000 to 55,000,000 organisms per cc. Rideal Walker coefficients give a value for the phenol coefficient of 6-8, depending on the test organism. Cecil I. B. Voge. *Chem. Products* **4,** 40-41 (1941).

Soap and Phenols

A study of the viscosity of soap solutions in the presence of various phenols, was made. Ordinary phenol gave lower viscosity maxima in soap solutions than did cresols. The introduction of a second phenolic group into the phenol molecule causes the complete disappearance of these maxima. Introduction of another group such as nitro or amino into phenol molecule causes a decrease of disappearance of the viscosity maxima in 0.2 *N* sodium stearate solutions. Naphthols produce marked maxima, that with the beta isomer being much greater than that with the alpha isomer. E. Angelescu and T. Manolescu. *Kolloid-Z.* **94,** 319-27 (1941).

Fatty Acids in Babassu Oil

The composition of the fatty acids of babassu oil was found to be: Caproic acid, none, caprylic 4.1 per cent, capric 7.6, lauric 45.1, myristic 16.5, palmitic 5.8, stearic 5.5, arachidic 0.7, oleic 11.9, and linoleic acid 2.8 per cent. This analysis disagrees with those reported by others in that the content of caprylic acid is less than that of capric acid. H. Nobori and I. Ono. *J. Soc. Chem. Ind.*, Japan 43, Suppl. binding 435-7.

Wool Felting

Anion-active agents which have good wetting power in acid solution, are also good felting agents. Jos. W. Creely and Geo. C. Le Compte. *Am. Dyestuff Reporter* **30,** 247-9, 268 (1941).

New Soap Specifications

(*from Page 35*)

E-2. *Computation.*—The percentage of moisture and volatile matter shall be computed, and reported by the testing laboratory, on the soap as received. The percentages of all other constituents shall be calculated and reported on an assumed moisture and volatile matter content of 15 per cent. For basis of purchase, see paragraph I-1.

	Maximum	*Minimum*
	Per cent	*Per cent*
Moisture and matter volatile at 105°C	15.0	—
Sum of free alkali or free acid, total matter insoluble in alcohol, and sodium chloride	12.0	—
Free alkali, calculated as sodium hydroxide (NaOH)	0.5	—
Free acid, calculated as oleic acid	0.5	—
Matter insoluble in water	1.0	—
Chloride, calculated as sodium chloride (NaCl)	1.0	—
Rosin	20.0	—
Anhydrous soap	—	72.0

F. METHODS OF SAMPLING, INSPECTION, AND TESTS

F-1. The inspector or purchasing officer shall determine whether or not the material is satisfactory as regards odor, color, and condition. If unsatisfactory the material should be rejected and not submitted to the testing laboratory for the tests referred to under Section F-2. (See paragraphs D-1b, D-2, and I-3.)

F-2. Deliveries will be sampled and tested according to the methods contained in Section F of Federal Specification P-S-536.

G. PACKAGING, PACKING AND MARKING FOR SHIPMENT

G-1. *Packaging.*—Unless otherwise specified, commercial packages are acceptable under this specification.

G-2. *Packing.* — Unless otherwise specified, the subject commodity shall be delivered in standard commercial containers, so constructed as to insure acceptance by common or other carriers, for safe transportation, at the lowest rate, to the point of delivery.

G-3. *Marking.* — Unless othewise specified, shipping containers shall be marked with the name of the material, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS

H-1. The following Departmental specifications of the issue in effect on date of invitation for bids shall form a part of this specification.

H-1a. *Army*: U. S. Army Specification No. 100-2, Standard Specification for Marking Shipments.

H-1b. *Navy:* Navy Department General Specifications for Inspection of Material (copies of which may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.).

H-1c. *Marine Corps:* Instructions issued by the Quartermaster.

I. NOTES

I-1. *Basis of Purchase.*—The material should be purchased by net weight, provided the moisture and matter volatile at 105° C. does not exceed 12 per cent. With deliveries containing more than 12 per cent but not exceeding 15 per cent of moisture and matter volatile at 105° C., settlement should be made on the basis of 12 per cent of moisture and matter volatile at 105° C.; that is, 0.88 lb. of nonvolatile matter should be considered 1 lb. of soap. For example: Moisture and matter volatile at 105° C. = 13 per cent, then:

$$\text{Net weight of material to be paid for} = \frac{\text{Net weight as received} \times (100-13)}{88}$$

I-2. Bidder should state size and weight of his unit.

I-3. Purchasers should specify if a mutually agreed upon sample is desired for comparison with deliveries for odor, color, and condition. (See paragraphs D-1b, D-2, F-1 and I-4.)

I-4. It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid samples should be definitely stated, the specification to apply in all other respects.

I-5. This specification covers only the types, classes, grades, sizes, etc., of the commodity as generally purchased by the Federal Government, and is not intended to include all of the types, etc., which are commercially available.

I-6. An index of Federal Specifications may be purchased as noted in the paragraph next below, price to be obtained from the Superintendent of Documents.

I-7. Copies of this specification and P-S-536, Soap and Soap Products; General Specifications (Methods for Sampling and Testing), may be obtained upon application, accompanied by money order or coupon, or cash, to Superintendent of Documents, Government Printing Office, Washington, D. C., price 5 cents each.

Notice: When Government drawings, specifications, or other data are used for any Government procurement operation, the United State Government thereby incurs no responsibility or any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

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Washing Powder

Foaming washing powder may have a fatty-acid content up to 3 per cent. A suitable composition is as follows: 6 parts of 50 per cent soap, 20 parts of 38° sodium silicate, 10 of calcined Glauber's salt, 15 of trisodium phosphate, 39 of calcined soda ash, and 20 parts of water. *Seifensieder-Ztg.* **68**, 130 (1941).

◆

Bone Fat for Soap

Bone fat is used like any other fat stock for making soap, either semiboiled or boiled, but saponifies very readily because it usually contains a high proportion of free fatty acids. The yield from a good bone fat is 150-155 per cent. *Seifensieder-Ztg.* **68**, 172 (1941).

◆

Ascorbic Acid as Antioxidant

Ascorbic acid is an effective antioxidant for certain vegetable oils, their hydrogenated products and esters. It enhances the antioxygenic activity of tocopherols, hydroxy chromans, hydroquinones and related compounds. C. Golumbic and H. A. Mattill. *J. Am. Chem. Soc.* **63**, 1279-80 (1941).

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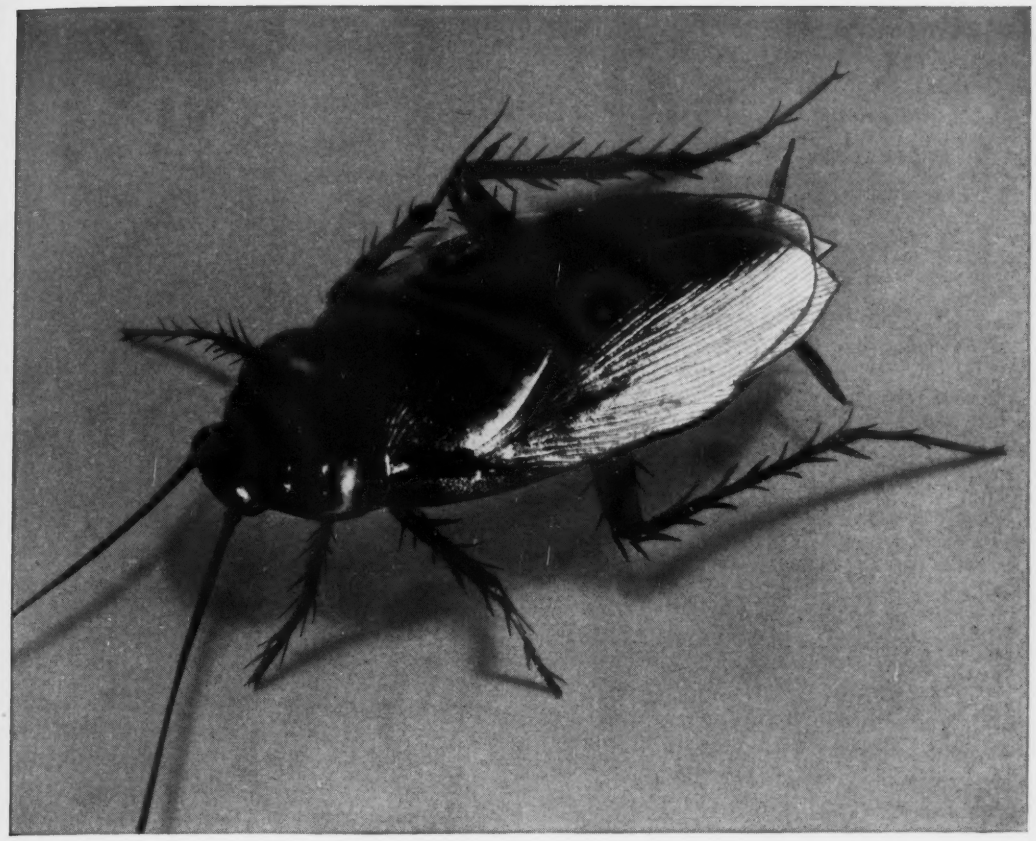

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	Molecular Weight	Melting Point, °C.	Boiling Point, °C.	Specific Gravity 20°C./20°C.	pH of 0.1 M Aqueous Solution at 20°C.	Solubility in water —grams per 100 cc. at 20°C.
2-Amino-1-butanol	89.14	−2	178 (at 760 mm. of Hg)	0.944	11.11	Completely miscible
2-Amino-2-methyl-1-propanol	89.14	25 to 26	165 (at 760 mm. of Hg)	0.934	11.27	Completely miscible
2-Amino-2-methyl-1,3-propanediol	105.14	109 to 111	151 to 152 (at 10 mm. of Hg)	. . .	10.78	250
2-Amino-2-ethyl-1,3-propanediol	119.16	37.5 to 38.5	152 to 153 (at 10 mm. of Hg)	1.099	10.82	Completely miscible
Tris(hydroxymethyl)-aminomethane	121.14	171 to 172	219 to 220 (at 10 mm. of Hg)	. . .	10.36	80

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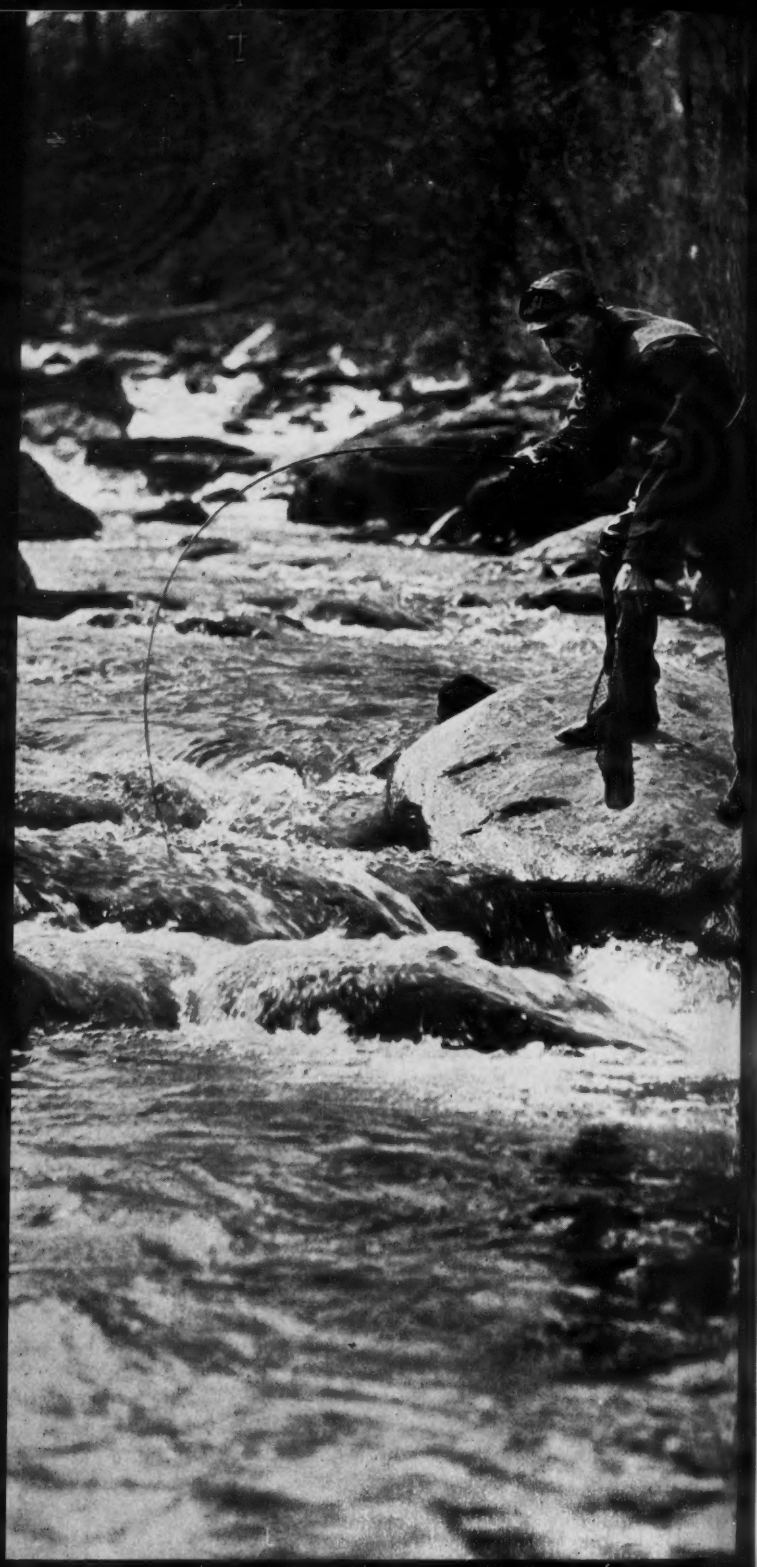

We wish you lots of luck this season and hope your insecticide sales break all records. But if they're not quite up to par remember that odor has a lot to do with sales appeal. The one that's most pleasant to use is the one they'll buy again.

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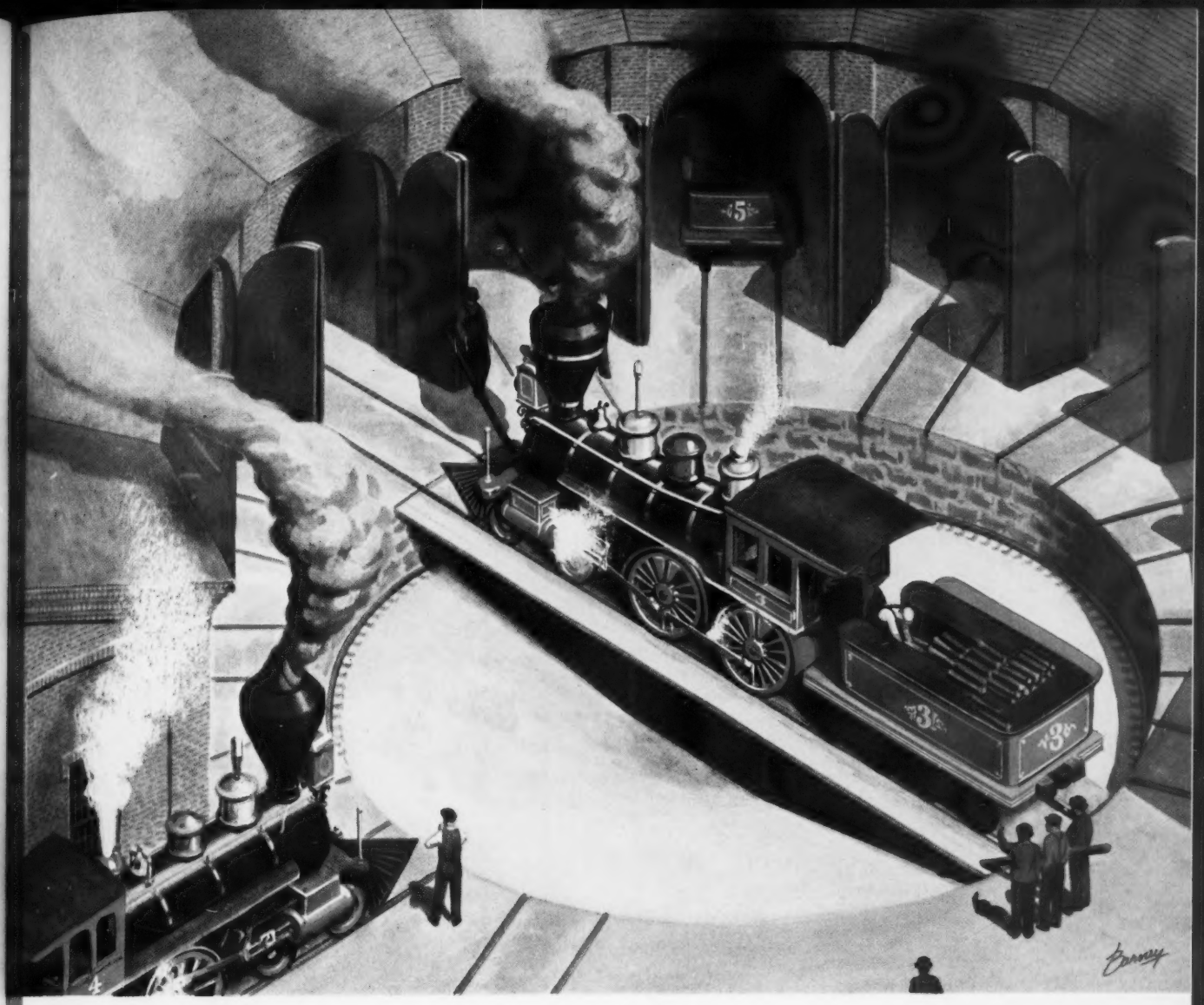

The package with the one-track mind

ONCE upon a time a railroad owner had a packaging problem. He owned a lot of locomotives. Bright red, handsome things they were in those days, trimmed all over with shiny brass.

Naturally, he didn't like leaving these fancy "Iron Horses" just standing around in the open all the time. He wanted them protected, under cover, when they weren't chugging about on business.

So he had a roundhouse invented.

It had plenty of space for his engines. And many tracks. But one track in this new "package" was more important than all the others. That was the track in the middle. It had a turntable that always put the locomotives on the right track, whether they were coming in or going out.

When it comes to helping manufacturers get on the right track to good packaging, Continental's experts have a one-track mind. Their sole aim is to provide our customers with the best possible container for the lowest possible cost.

In developing the right package for any product, they consider style, size, and shape. They study color and typography. They make sure the container is convenient for consumers, economical to produce, easy to fill, pack, ship, sell, and use.

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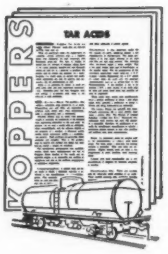
Cresol · Cresylic Acid

TAR ACID OILS

CRESOL—U.S.P. with a very close cut distillation range and light color, for pharmaceutical purposes —Meta-Para Cresol with high meta cresol content —Resin Cresols close cut to wide boiling with guaranteed meta cresol contents.

CRESYLIC ACID—Many distillation ranges appropriate for all established uses—pale color—clean odor—total impurities besides water not exceeding one-half of one per cent.

TAR ACID OILS—Frozen crystal free at O°C.—good emulsion forming properties—low benzophenol content—appropriate for low to high coefficiencies with tar acid contents as required.



Technical data sheets on "Tar Acids" and "Tar Acid Oils" are available on request. Write for your copies.

OTHER KOPPERS PRODUCTS: Shingle Stain Oil . . . Refined Tars . . . Pitch Coke . . . Industrial Coal Tar Pitches . . . Flotation Oils . . . Creosote . . . Removal and Recovery Systems . . . Coal Tar Roofing Materials . . . Waterproofing and Dampproofing Materials . . . Tarmac Road Tar Materials . . . Bituminous-base Paints . . . Coal . . . Coke . . . Fast's Self-aligning Couplings . . . Piston Rings . . . Pressure-treated Lumber.

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KOPPERS COMPANY
KOPPERS BUILDING
PITTSBURGH, PA.

DISINFECTANTS
DEODORANTS
INSECTICIDES

•

REFINED NAPHTHALENE

Crushed, Crystals, Powder, Lump, Chips, Flakes. For use in manufacture of deodorizing blocks, moth preventives and other insecticides. Also Naphthalene in Balls, Blocks, Tablets.

COAL TAR DISINFECTANTS
Coefficients 2 to 20, F.D.A. Method

CRESOL AND
CRESYLIC DISINFECTANTS

PINE OIL DISINFECTANTS

PINE OIL DEODORANTS

CRYSTAL AND BLOCK DEODORANTS

LIQUID INSECTICIDES

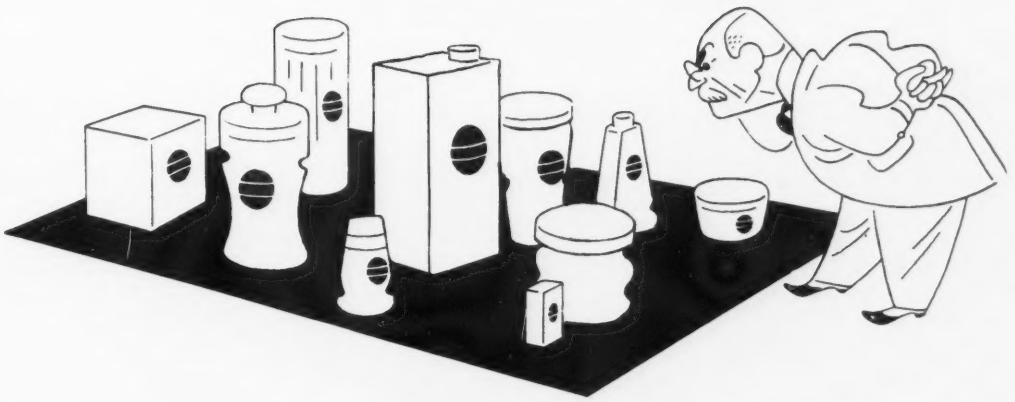
DEODORIZING BLOCKS

Pressed Naphthalene or Paradichlorobenzene. Various sizes and shapes. Perfumed and plain. Bulk industrial packages, retail packages.

THE WHITE TAR COMPANY
OF NEW JERSEY, INC.
KEARNY, N. J.

KOPPERS

Have you had your packages "on the carpet" lately?



Your competitors are forever introducing new products, new packages, new advertising and sales promotion ideas, improving present packages to make them more attractive, more convenient, more practical—everything possible to attract more consumers to their products. How do your packages compare with those of competitors?

Perhaps now is the time to examine your packages critically

ARE THEY ATTRACTIVE, CONVENIENT, AND PRACTICAL? Do they display your products to their full advantage, provide dependable airtight, leak-proof protection to the contents until completely used? Do they permit easy access to the contents?...removal of entire contents with ease? Is their design, height and shape practical for contents, their use, purpose and storage? Are they easy and convenient to handle? Are they made of lightweight glass in order to keep shipping costs down? Do they handle efficiently and economically on your production line? Are they easy to pack and label?

Perhaps you can answer "yes" to all of the above questions but chances are your packages can be improved to produce greater sales and profits. Why not let the Anchor Hocking Packaging Design Department, Engineering Staff and Chemical and Biological Laboratories go to work for you? It will cost you nothing to have us analyze your packages and may prove the means of producing a substantial increase in sales and profits. Send us two of your packages today. No obligation, of course.

ANCHOR HOCKING GLASS CAPS

ANCHOR HOCKING GLASS CORPORATION

LANCASTER, OHIO

AN "INVISIBLE LIFEGUARD" IS ON DUTY!

Small private pools . . . and larger commercial and municipal pools . . . are now completely sanitized and sterilized by a single disinfecting agent . . . Sanitation H. T. H.

This "invisible lifeguard" . . . product of the Mathieson Alkali Works, Inc . . . is shipped in dry form, easy to handle and apply. Requiring complete protection against moisture, however, Sanitation H. T. H. is packaged in specially designed and constructed Crown Cans . . . each fitted with a handy, replaceable Williams Kork-N-Seal Cap.

Manufacturers seeking full and complete protection for their products have discovered that the Crown organization is exceptionally well qualified to work out any and all packaging problems . . . from the simplest to the most complex. Consult Crown first when planning a new container . . . or modernizing an old one! You'll find interested, completely co-operative service at your command in every department of the Crown organization.

CROWN CAN COMPANY, PHILADELPHIA, PA.
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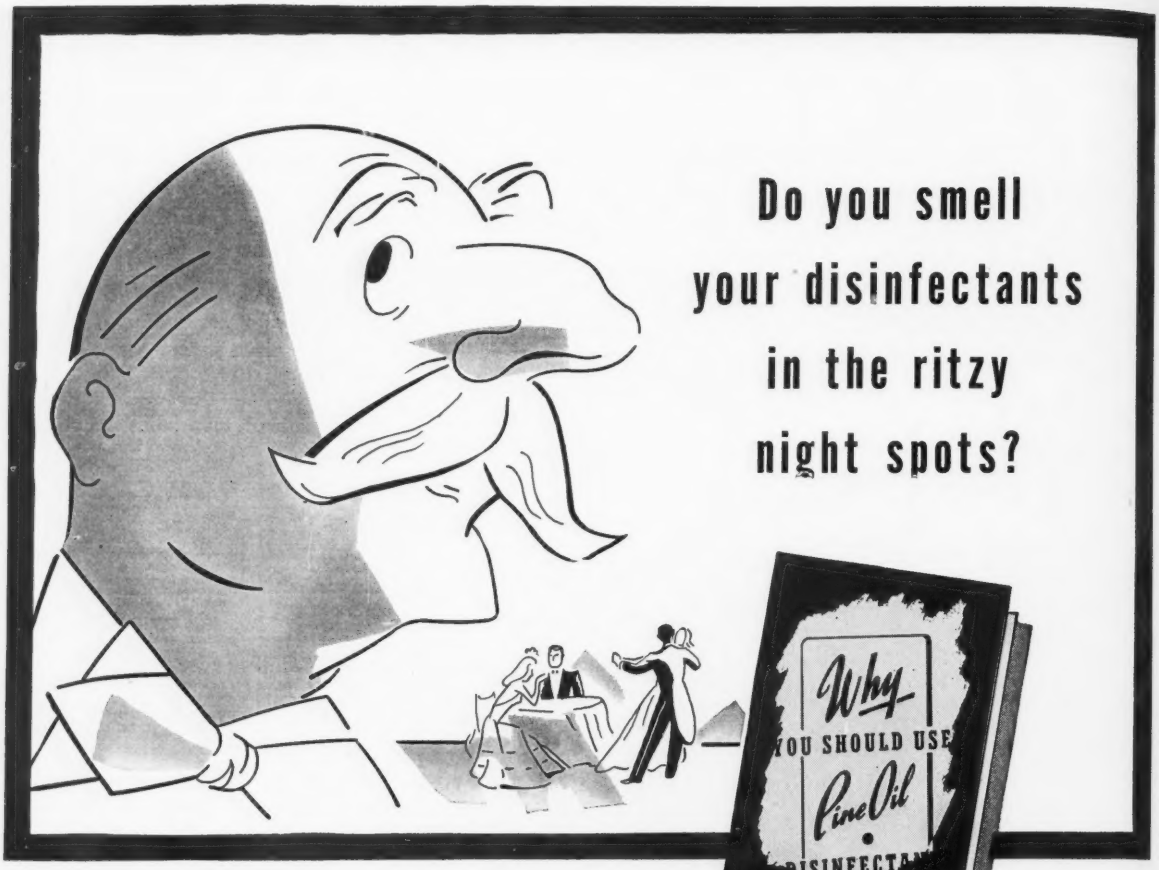
INDEPENDENT AND HELPFUL

CROWN CAN



YOU'LL never catch a whiff of "disinfectant odor" mingling with the scent of gardenias and rare perfumes. Yet, even the ritzy night spots must be cleaned.

That accounts for the way the public is going for disinfectants with the fresh, clean smell imparted by Yarmor* 302. They're as fragrant as the breeze that blows through the pines. Yet the phenol coefficient is there to do a job.

The booklet illustrated tells the story to consumers. You're welcome to use all or any part of it in preparing your advertising literature for building superintendents, housewives, or dealers. Just write for a copy.

DISINFECTANTS MADE WITH YARMOR 302 PINE OIL ACCORDING TO THE PRESCRIBED DIRECTIONS:

1 Have a clear, sparkling, amber color.

2 Produce a snowy-white emulsion in water.

3 Are free from suspended matter. This denotes uniformity.

4 Are non-toxic to man when handled as a disinfectant.

5 Do not stain when in diluted form.

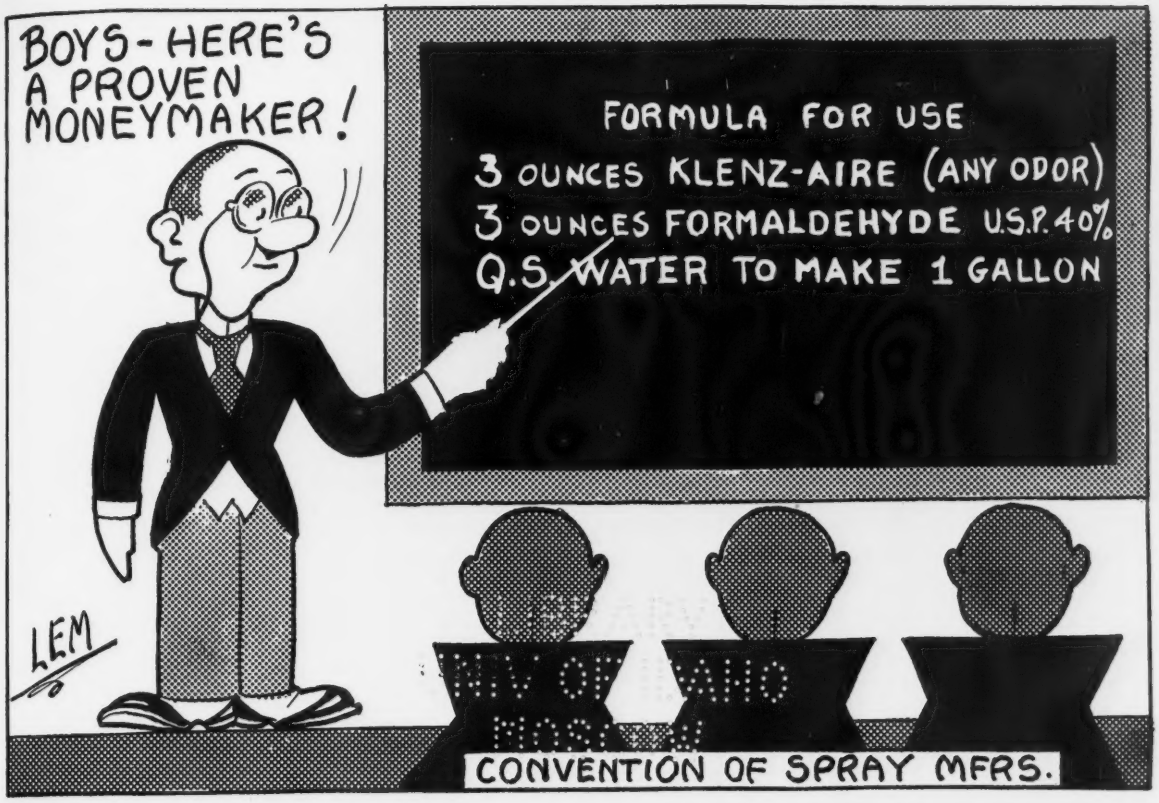
6 Are effective preparation for general disinfection except when necessary to combat pus-forming organisms.

7 Leave a clean, piney odor wherever applied.

*Reg. U. S. Pat. Off.

QQ-87

HERCULES POWDER COMPANY
INCORPORATED



Klenz-Aire Deodorant Oils

Antiseptic	Honeysuckle	Oriental
Bouquet	Jasmin	Pine Needle
Cedar	Lavender	Rose
Clover	Lilac	Sandalwood
Eucalyptus	Mint	Trefle
Gardenia	New Mown Hay	Wisteria

Formula For Use

3 ounces Klenz-Aire Deodorant Oil
3 ounces Formaldehyde U.S.P. 40%
Balance—water to make one gallon

This formula makes a finished deodorant spray in milky emulsion form which may be colored any shade to make it more attractive.

There is a great field for a deodorant of this type. It kills all tobacco, cooking, theatre and tavern odors. It purifies the air of any public place where crowds assemble. A little of this finished spray solution used by means of a spray directly into public urinals, will have an instant and efficient deodorizing effect.

Klenz-Aire Deodorant Oils will absolutely accomplish what we claim for them. Experiment yourself and be convinced.

Order a Trial Pound

1 lb. lots . . . . . $3.00 lb.
5 lb. lots . . . . . 2.85 lb.
25 lb. lots . . . . . 2.75 lb.
F.O.B. New York

AROMATIC PRODUCTS, Inc.

15 East 30th Street, New York — Factory: Springdale, Conn.

ATLANTA • DALLAS • MEMPHIS • PITTSBURGH • CHICAGO

SNOW WHITE EMULSION
FRAGANT PINE ODOR
YOUR CHOICE OF COLOR
HIGHEST QUALITY
PROMPT SHIPMENT
ATTRACTIVE PRICES

FOR SAMPLES WRITE

BAIRD & McGUIRE, INC.

ST. LOUIS, MO. HOLBROOK, MASS.

SANITARY PRODUCTS

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

ATTENTION to the advertising of certain pest control operators has again been called by the secretary of the National Pest Control Association. In spite of the wide efforts of that Association over a period of years to eliminate exaggerated and untrue statements from pest control advertising, it is pointed out that this continues in some quarters. And, he goes on to say, there is no wonder that the public is confused by many of the "assinine statements" which still appear mostly in telephone directory advertising.

These firms which continue to violate the advertising code of their national association are obviously doing to themselves a greater injury than to their competitors over whom they hope to gain an advantage by such tricky and unfair methods. Whether they believe it or not, their exaggerated advertising does not beget confidence. It arouses suspicion, — the usual suspicion when one firm offers so much more than competitors and then tops it off with "lowest prices." Who knows how many times these exaggerated advertisements are passed by in favor of those of a more conservative nature, simply because people suspect that the claims of the former are too good to be true?

To that of the national secretary, we desire to add our voice. Bad advertising is bad business which in the long run harms more than it helps. Examine your claims with a critical eye and stick to facts. Use conservative copy and gain the confidence of those who would do business with you. It will not only help the entire industry, but the chances are very strong that it will help your own business most of all.

SODIUM fluoride is scarce. In the light of this scarcity, pest control operators are being advised to use less fluoride in their roach powders and to increase the proportion of other ingredients. In one case, it is suggested that those operators,— and the same applies to insecticide manufacturers where container labels can be changed conveniently, — who have been using straight fluoride or a three-to-one fluoride-pyrethrum mixture, cut the fluoride content. Three-to-one fluoride-pyrethrum can be made a fifty-fifty mixture, or if this is too costly, the difference can be made up by the addition of clay, flour, or some other inert substance. Borax cannot be recommended because this also is scarce and becoming increasingly hard to get.

For a roach powder, some operators and entomologists maintain that fifty per cent fluoride is sufficient and that straight fluoride is not necessary anyway to do a good roach job. So, now seems to be the time to check over your roach powder formula with the idea of using more pyrethrum, or rotenone products to make your supplies of fluoride go further.

CATTLE SPRAY TESTING

By Frank C. Nelson*

Stanco, Incorporated

YOUR committee is of the opinion that none of the methods for testing cattle sprays now in use are acceptable for general adoption as official methods. In fact, three different types of tests would have to be set up to cover the field properly:

1. A field test for evaluating repellency and toxicity.

2. A laboratory method for evaluating toxicity.

3. A laboratory method for evaluating repellency.

These three types of tests will be summarized later in this report but the committee feels that all that can be done at present is to give you most of the references, a short summary of those in most general use, point out some of the objections, and let you choose the one you decide is the most suitable. Both field methods require a good many cows, much time, and a thoroughly trained man. Both methods appear to have some limitations as pointed out in the references.

The laboratory methods for evaluating toxicity are not satisfactory as they stand. The base oils used in cattle sprays vary in viscosity, etc., and sprayers, air pressure, etc., would have to be worked out for each one, or a standard oil specification would have to be established. Heavy oils in the Peet-Grady room are hard to clean up and results are not always too satisfactory. Dr. Eagleson's "Spray Tunnel" may be very good but the results were obtained on a light household-type oil which is not the type of oil base used by most cattle spray manufacturers. Future tests using the heavier oils may show that this method is entirely acceptable, and if so, the committee functioning at that time will, no doubt, be glad to recommend it or any other method that may be developed in the future.

The laboratory methods for testing repellency values are definitely not acceptable to the committee. Results obtained on house flies in the laboratory, do not always correlate with field results on other pests. They do not bite and are not the major pest of livestock. Horn flies (*Haematobia irritans*); Biting Stable Flies (*Stomoxys calcitrans*), Horse flies (*Tabanidae*) are all blood feeders and under some conditions are very difficult to keep off. Unfortunately, none of these are easy to rear nor do they respond normally in the laboratory. Your committee, therefore, feels that repellency studies, in the final analysis, must be conducted in the field. In view of this, it is the opinion of the committee that no livestock spray test can be recommended for acceptance as an official test at the present time.

A summary of the most generally used methods is given below, as a possible assistance to anyone who wishes to review the field.

The "Pearson et al" method:

"Existing methods of testing cattle fly sprays for repellent efficiency on the stable fly (*Stomoxys calcitrans*) are unsatisfactory. A method, which consists essentially of making close observations on sprayed cows of previously determined fly susceptibility, gave much better results. Thirty-five selected cows were used in determining the relative efficiency of six fly sprays. The cows were scrubbed with soap and water, then staked individually in a pasture, being removed only for watering and milking. The normal fly susceptibility of each cow was obtained from the average of two counts of the number of flies present, made hourly from 7 a.m. till 3 p.m. for a period of three days. The cows were then placed in seven groups of five each, the maximum difference in the number of flies per cow per count between the groups, being about two. The six spray materials were then assigned by chance to each of six groups of five cows; the remaining group served as the control. Each cow was sprayed at 6 a.m. daily for four consecutive days with two fluid ounces of spray material applied with an electric sprayer. The fly susceptibility of the sprayed and control cows was determined as before. The results show that close individual observations of a relatively few cows of known fly susceptibility give more consistent and dependable results than less accurate observations on a large number of cows. The population of stable flies on unsprayed dairy cattle increases from 7 a.m. till about mid-day after which, it tends to become stationary."

A later revision of the above method was made by Pearson as follows:

"The most satisfactory procedure discovered consists of hourly observations for eight consecutive days on cows staked individually. On the day preceding a series of tests, all of the test cows are thoroughly washed. The first four days constitute a preliminary period, during which all of the cows are sprayed with a base oil alone at 6:00 a.m. daily, and hourly fly counts are made from 7:00

* Report of Cattle Spray Test Committee before 27th mid-year meeting Natl. Assn. of Insecticides & Disinfectant Mfrs., Chicago, June, 1941, F. C. Nelson, chairman.

a.m. to 4:00 p.m. From the results of these fly counts the cows are then placed in groups of five each, on a basis of their individual fly susceptibility. The average number of flies per cow per count for each group should not vary more than about two. During the following four days, the cows are sprayed daily at 6:00 a.m. with the same base oil, in which has been incorporated the repellent ingredient or ingredients under tests. Fly counts are made as before. The preliminary period of four days gave more consistent results than one of shorter duration, but a longer period was not necessary in order to obtain reproducible results."

The "Half Cow Method":

This method has been used quite extensively as a shorter and less troublesome test. Many variations in the actual details of the method have been made depending on what the operator considered most reliable. Some found that the application of a spray to one side of the animal would tend to repel the flies from the untreated side. Work carried on by E. M. Searls, and F. M. Snyder, using this method with apparently satisfactory results, is outlined below and taken from report by Dr. Snyder:

"Method (2) the "half cow" method, depends upon spraying one side of a group of test cows and by counting the number of flies on both sides, computing the per cent repellency from this data. From 1935 to 1937 tests conducted at the University of Wisconsin, and again in Texas in 1939, demonstrated that spraying one side of a cow would tend to repel flies from the unsprayed side. Also, that no constant enough relation existed between total and hourly fly populations to insure accurate results from the 'whole cow' method. Thus, of the two commonly used methods, neither, when used by itself, gave results that insured reliable hourly figures."

"After several years of study it was concluded to use a test procedure that would avoid the inaccuracies of both, and yet combine the best points of each; namely, by spraying only one-half of a cow but at the same time using a larger number of test cows per material and by having a group of entirely unsprayed cows to use as 'alternate checks' throughout the season. Four Jersey cows were used for each product to be tested, and between 5:45 a.m. and 6:15 a.m. (milking time) one-half ounce of the spray was sprayed upon one side of each of the four cows. For each product reported, this procedure was repeated for a total of 25 days. This, it was concluded, gave sufficient data

to give a true average evaluation. In all, five groups of four Jersey cows were used. One group of four was used as a 'check' and was not sprayed throughout the season. The other four groups of four cows each were numbered for identification and used to test various materials."

"The sprays were applied by an electric sprayer, carefully adjusting the nozzle for control of droplet-size for products of different viscosities. While the cows were being sprayed, the unsprayed side was covered by a heavy cloth counterweighted to insure that no spray touched the 'unsprayed side.' The animals were then turned out to roam at will under practical farm conditions but within restricted areas, and hourly counts were made on the number of horn and stable flies on both sides of the animals. Flies in both feeding and resting positions were counted."

"The groups of four cows each were rotated so that the results would not be distorted if one group of four cows, by chance, might be more resistant than other groups. In other words, the groups were randomized as regards the cattle sprays (repellents) and the base oils in the sprays."

The method of calculation of results used by Dr. Snyder follows:

"To obtain per cent repellency figures the following calculations were made. The number of flies on the sprayed side was divided by the number on the unsprayed side, and the quotient converted to percentage. Then the number of flies on the sprayed side was divided by the average number of flies on one side of the "check" cows and the quotient converted to percentage. By taking an average of these two percentage figures the final percentage figure was obtained. Viz.

$$R^1 = (1.00 - \frac{S}{U})\ 100$$

$$R^2 = (1.00 - \frac{S}{Cm})\ 100$$

$$\%R = \frac{R^1 + R^2}{2}$$

U = flies on unsprayed side

S = flies on sprayed side

Cm = mean number of flies on one side of check cows

%R = Per cent repellency

"The first calculation (R^1) corrects for the excess number of flies driven on to the "check" cows. The second calculation (R^2) corrects for the number of flies driven off the unsprayed side by the effect of the repellent on the sprayed side."

Both methods require experience and time to be of any value at all and anyone wishing to make cattle spray studies should carefully review both methods and decide which one most nearly meets his conditions.

Laboratory Tests

THE testing of cattle sprays in the laboratory must be broken up into two types of tests:

1. Repellent tests
2. Toxicity tests

Repellent Methods:

1. "Kilgore Method":

This is a laboratory method with house flies as the test insect. It seems to have given reasonably good correlation between laboratory and field tests, but more data should be available on such studies before setting up any method as the official test. Details of the test taken from the June, 1939 issue of *Soap* are as follows:

"A smooth, thin film of black molasses is spread on strips of white blotting paper (one inch by four inches), leaving a margin of at least one-quarter inch on all sides. The use of such a margin makes feeding impossible unless the insects are actually on the strips, thus facilitating the counting. These prepared strips are allowed to dry, preferably in a drying oven at 30 to 35° C., until a hard, glossy surface is produced."

"After the baits have been so prepared, the object is to shield them from the attack of the flies by the intervention of various chemicals under examination, as was pointed out above. At first, the chemical to be tested was dissolved in a diluent which could be atomized on to the surface of the bait. The use of such a spray gave rise to several serious disadvantages and was found to be inoperative. The principle of the method proposed here which leads to its name, the "Sandwich-Bait Method," depends upon the use of a thin, highly porous cover impregnated with the chemical under examination and superimposed on the bait."

"These covers are the same size as the bait strips and are cut from the cushion sheets used in mimeograph stencils. This paper is thin, porous, and highly absorbent. The loose fiber construction of this paper permits the fly to remove the molasses through it from the bait beneath. Although they are not as satisfactory, tissue paper handkerchiefs may also be used for such covers. In order to impregnate these covers uniformly, they are immersed in an alcoholic solution of the material to be tested. The excess solution is removed by drawing the cover evenly over a stirring rod as it is lifted from the solution. These covers, saturated with the respective alcoholic solutions, are hung over a glass rod and permitted to dry for at least six hours in the dark or very diffuse light. The cover papers so impregnated with the chemicals differ little in appearance from the untreated papers except in the cases of high concentrations of essential oils. After drying, these cover papers are carefully placed over the baits and fastened in place by stapling. In assembling the baits, care must be taken not to press down on the bait or otherwise touch it with the fingers as the molasses is easily forced up through the cover strip. These strips are conveniently fastened by means of a hand stapler which not only fastens the cover strips but also fastens the assembled baits onto a cardboard backing. Care again must be exercised to avoid stapling through the molasses-covered portion of the bait, which would allow the bait to be attacked through the puncture."

"The essential oil, citronella, is perhaps the most widely known material used as an insect repellent, particularly on persons. In view of the wide variation of its chemical composition and attendant insect repellent properties, this oil is obviously unsuitable for use as a standard of comparison. However, one of its components, the alcohol, citronellol, can be prepared synthetically by the reduction of its corresponding aldehyde. A commercial grade of this alcohol is suitable for use as a standard insectifuge, as it shows an insectifugal activity approximately equal to that of high grade Ceylon citronella oils and corresponds to the popular conception of citronella oil as a repellent. The particular citronellol used in our laboratory for this purpose has the following physical properties: boiling range, 117 to 119° C. at 20 mm. pressure; specific rotation.—0.97°."

"In order to provide means for evaluating the insectifugal activity, it has been found advisable to prepare six baits mounted at uniform spacings on a five by eight-inch cardboard. Stock solutions of the special citronellol are made up at 10, 20, 40, and 60 per cent concentrations, respectively, in alcohol. The chemical under test, the unknown, is made up similarly at 20 per cent concentration. The six cover slips corresponding to the six baits are prepared as follows: duplicate cover strips are impregnated with the unknown solution and one cover strip is impregnated with each of the four respective concentrations of citronellol."

"Inasmuch as the position in which the baits are mounted with respect to each other on the card is of obvious importance, a definite arrangement must be used in making all tests for evaluation purposes. For example, in all cases reported in this paper the baits are mounted in this order, reading from left to right: 20 per cent citronellol, 60 per cent citronellol, unknown, 10 per cent citronellol, duplicate unknown, 40 per cent citronellol. Note that two baits are prepared using the same unknown in order to preclude any possible effect of position on the card. In addition to this precaution, the arrangement of the baits is made so that the two samples are separated by the lowest concentration of the citronellol. This is done so that the insects will be equally attracted to the two unknowns after the lowest concentration of the citronellol has been depleted. Furthermore, the two higher concentrations of the citronellol are positioned on the other respective sides of the two unknown baits so that any odor from the citronellol will have, as nearly as possible, an equal effect with respect to the two unknown baits."

"It has been found that more consistent results are obtained when the flies are more than five days old; we use a special stock cage for testing purposes, one that will comfortably confine 2,000 flies, into which cage daily additions are made from the residue of stock cages used for Peet-Grady tests. All tests are conducted in an insectary maintained at 80° F. and 60 per cent relative humidity. The humidity appears to have an important bearing on the feeding activity of the flies. In order to obtain the optimum response, the flies should not have been fed for twelve hours prior to testing. They should, however, be provided with cotton soaked with water during the tests."

"Observations should be made at intervals of at least fifteen minutes. The intervals may be shortened in the case of a compound having a low repellent value. It has been found convenient to record these observations numerically by means of an actual count of the number of flies feeding on each bait at the time. Such a detailed count is not made in cases where the number exceeds 50, and a value of 100 is arbitrarily assigned when the bait is completely covered by feeding flies. In addition to these observations, it has been found to be of considerable value to make time-lapse photographs at these intervals. This may readily be accomplished with a miniature having a suitable ground glass focusing attachment and permitting 30 to 40 exposures."

"Whitmire Method"

This is also a laboratory method, and an attempt has been made to more closely simulate actual conditions by using hide instead of filter papers.

Test Procedure

Material used: The 3" squares of deer or calf skin tanned with hair on.

Powdered Sugar: Each sample is thoroughly treated with 250 mg. of sugar rubbed well into the hair.

Volume of Spray: 125 to 150 mg. on a square of hair.

Method of Application: The 3" square of hair containing the sugar is weighed on an analytical balance and then sprayed with a hand atomizer from a distance of 6" and reweighed. At the end of 1, 4, and 8 hours the skin is reweighed in order to record the loss by evaporation of the oil base and for repellency comparisons.

Livestock Spray Specifications

A.P.I. Gravity 31.7

Specific Gravity 0.8681

Viscosity at 100" *F.* 44

Formula used: Rotenoid Extract 10 per cent, Livestock Base Oil SLB 90 per cent.

Test Procedure: We use two squares of deer or calf skin for each test. One is sprayed and the other is not, both containing the same weight of sugar in the hair.

These two squares of hair are placed at each end of a brown cardboard 5" x 24" x 24" cage containing approximately 250-300 flies that have been starved of water and food over night.

The skins are placed on the brown cardboard to facilitate insertion into the cage, and to insure that there is nothing unusual in the bottom of the cage to either attract or repel the flies other than the test material.

Observations: At 30 minute intervals after introduction the following notations were made:

(1) Number of flies on the sprayed skin.

(2) Number of flies on the unsprayed skin.
(3) Number of flies affected but walking.
(4) Number of flies unable to walk.

Toxicity Tests:

1. Peet-Grady Test (see Soap Blue Book)

2. Eagleson's Funnel Method

THE Peet-Grady Test has become familiar with most people interested in either cattle or household sprays. For complete details the reader should read the published directions in the *Blue Book*, published by *Soap & Sanitary Chemicals*.

Dr. Eagleson's method has been previously mentioned. It appears in full in the July, 1940 issue of *Soap & Sanitary Chemicals*, pp. 96-99, 117. A short summary of this method that will really give the reader a complete understanding, is rather difficult and the original article should be read. The main features are as follows:

"The flies are placed in small wire cylinders which in turn are placed in a tapered cylinder. The cage revolves during the test. The spray is delivered at one end of the tube and sucked out of the smaller end. Fresh air is constantly passing through the tube along with the spray. The cage is removed after 2 cc. of spray have been delivered by a special atomizer. These treated cages are then placed in a special recovery cabinet through which a constant supply of fresh air is passed and the temperature and humidity closely controlled. The summary as taken from the original article is as follows:

"A technique is described for assaying the insecticidal power of livestock fly sprays, wherein emphasis is placed on the provision of forced ventilation of the insects during spray application and the observation period. The object is to achieve better simulation of conditions under which livestock sprays are used.

"From 14 to 20 per cent less mortality was observed among houseflies when well aerated after spraying than when protected from currents of air, as when placed in screen cages having solid bottoms."

"Examples of results of the method of assay are given. It is indicated that a chemical assay of toxicant is not an entirely adequate or dependable index of toxicity for livestock sprays."

There are other methods and variations on some of the ones just covered, but it is not the purpose of this report to cover all of these. If the committee has inadvertently omitted a reference or method that should have been included, they will be glad to have it called to their attention for future publication.

The following method of testing has just been received and is being added to the above methods to make this report complete. This was given to me by Dr. Searls.

"In this experiment it was desired to test the effectiveness of nine different spray materials which were numbered from 1 to 9. Nine cows were selected at random from one of the herds at the Experiment Station, distinctively marked, and numbered from one to nine. The numerical identity of both the sprays and the cows were retained unchanged throughout the experiment. During the first week, Spray No. 1 was applied to Cow No. 1 and so on in numerical order. The second week, Spray No. 1 was applied to Cow No. 2 and so on in numerical order with Spray No. 9 being applied to Cow No. 1. This procedure was followed until, the ninth week, Spray No. 1 was applied to Cow No. 9 and Spray No. 9 was applied to Cow No. 8, thereby completing the cycle. Four other cows were used as unsprayed checks throughout the experiment. Still another cow was sprayed with the same amount of base oil as that applied to the test animals. The unsprayed checks and the cow sprayed with oil alone were not used in any rotation.

The cows were sprayed immediately after milking, about 5:30, each morning and were turned out to pasture with the rest of the herd. Here they were permitted to behave as they chose. Thirty c.c. of spray were applied to each cow. The sprayer used in this test was an electrically driven (Electric Sprayit Model 77) type with an adjustable nozzle. The nozzle was carefully adjusted, using the spray procured for this experiment, to produce even-sized small droplets which gave the maximum coverage without producing a drifting fog. Considerable time was spent in practicing with the sprayer to distribute the entire amount of spray evenly over the animal's body. In actual practice the operator stood just beside and about 3 feet away from the cow. From this position, the entire side of a cow could be reached with spray by moving the sprayer and holding the nozzle uniformly about 2 feet from the part being sprayed. As far as possible, the spray was directed perpendicularly to the side of the animal.

Each change in the experiment was begun on Monday and terminated on Saturday. No spraying or counting was done on Sunday. This 24-hour period between tests was allowed to permit all residues from previous sprays to dissipate.

Fly counts were made at 7, 8:30, 10:30, 12:30 and 2:30. The cows were brought in for milking at 3:00 and remained in the barn for about 1½ hrs. The numbers of horn flies and stable flies were recorded separately. For ease of counting the number of flies on each side of each cow was also recorded separately. These were added and used as a total for each cow, but it appeared easier to record them separately since only one side of the cow was visible at one time. The side not visible was then counted at a convenient time immediately afterwards. The counts on the exposed sides of other cows could be recorded in the meantime.

The results of these tests were shown by determining the geometric means of the actual counts plus 1 for each hour for each material against each species of flies throughout the experiment. The comparative value of the different materials was determined by computing the minimal

significant difference between materials for each hour against each species of flies. The most effective materials at the various hours were those showing the smallest number of flies. The materials were significantly different from each other as the fly counts were separated by a quantity equal to the minimal significant difference.

The effectiveness of each material and the base oil alone as a control measure was determined by using the formula

$$\frac{\text{(mean count on check)} - \text{(mean count for spray)}}{\text{mean count on check}} \times 100$$

This method of testing cattle fly sprays was selected in conference with Dr. Churchill Eisenhart, Station Statistician, who also suggested and superintended the method of analysis used. This method appears to possess certain definite advantages.

1. It permits the testing of the materials under natural conditions.

2. All materials are tested concurrently,—all differences due to variations in animals and climatic conditions are included in the average.

3. Each material may be given, weather permitting, 54 different tests.

4. The effectiveness of each material as a control may be determined.

5. The comparative effectiveness of the different materials may be determined.

Another method of testing came through in the May issue of "Soap" magazine, pages 101 to 107 inclusive which should also be included here to keep the report up to date. I am only including the summary as given in the report, and the original article should be used for details.

"A new method of making bioassays of pyrethrum livestock sprays is described and compared with previously used methods.

Houseflies were treated with pyrethrum sprays in a modified Peet-Grady chamber, in an aerated spray tunnel, using a median lethal dose, and in an aerated spray tunnel, using a hypnotic dose. The flies were placed for observation in a recovery cabinet through which a constant stream of air was circulated. Dosage-mortality and dosage-torpor curves obtained by the three methods are given and compared with those published by other workers.

It is concluded that the use of hypnotic doses applied to houseflies in an aerated spray tunnel, with observations of torpor made during their recovery in an aerated recovery cabinet, is an advantageous and satisfactory method of assaying livestock fly sprays."

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INSECTICIDAL SMOKES . . .

Their Application in the Control of Household Insects

L. D. GOODHUE and W. N. SULLIVAN*

U. S. Department of Agriculture

SMOKE produced by the incomplete combustion of organic material is one of the earliest forms of insecticides, the well-known smudge having been used to repel mosquitoes and other troublesome insects for many years. Better results were obtained when the smoke came from burning tobacco or pyrethrum, both of which contain definite toxic principles. The smoke from derris, hellebore,[2] and other plant insecticides has been found from laboratory tests to have a fumigating action. In recent tests comparing the toxicity of smoke from burning derris and burning pyrethrum,[1] derris was much more toxic to the housefly, but the cockroach was more susceptible to pyrethrum.

The application of an insecticide as a smoke makes possible the use of non-volatile or slightly volatile insecticides as fumigants. The active material is suspended in the air in the form of very fine particles, which can be used for fumigation in much the same way that a vapor is used. The production of these smokes by burning, however, is a wasteful process. A condensation method has therefore been developed which is much more efficient, and it has now replaced the burning method.

After some experimentation it was found that when solutions of an insecticide in certain solvents are sprayed on a hot surface they produce dense clouds of white smoke which contain the insecticide.[4] The necessary apparatus consists of a small atomizer and an electric hot plate (fig. 1). The sprayed droplets are dispersed at the hot surface (375° C.) with explosive violence, which divides the insecticide into particles of colloidal dimensions. Mortality figures show that this method is more than 20 times as efficient as the burning method.

A dispersing apparatus with greater capacity and adaptable to larger enclosures has also been devised (fig. 2). The solution of the insecticide is fed into a revolving cup (200 r.p.m.) with perforated sides, which throws the spray against the inside wall of a cylinder heated to 400° C. The dispersion is carried away by a blast of air passing through a venturi tube in the head of the cylinder. The result is the same as that obtained by spraying onto an exposed hot surface.

Best results on flies were obtained by spraying onto a heated surface a 2 per cent solution of a 50-50 mixture of rotenone and pyrethrum oleoresin (total pyrethrins 25 per cent) in safrol. Only 0.2 g. of this mixture and an exposure of 1 hour was necessary to kill 96 per cent of the flies in a 1,100-cubic foot room. The same amount of rotenone alone killed 83 per cent, and of pyrethrum oleoresin alone 74 per cent.[4] This method of applying pyrethrum is particularly effective against mosquitoes. A 99 per cent kill was obtained with a 10-minute exposure to 0.1 g. of the oleoresin per 1,100 cubic feet. Complete knockdown was obtained in 5 minutes.[4]

Besides insecticides of plant origin there are many synthetic com-

Fig. 1—Dispersing apparatus consisting of an electric hot plate, atomizer and compressor.

* Before 27th mid-year meeting, National Association of Insecticide & Disinfectant Manufacturers, Chicago, June 9 and 10, 1941.

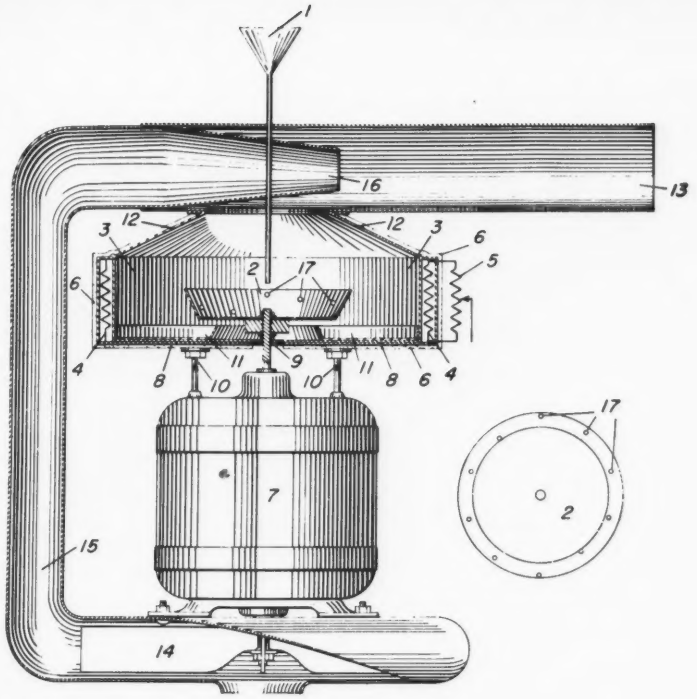

Fig. 2—Apparatus for dispersing insecticidal smokes in large enclosures: 1, funnel for introduction of insecticides; 2, revolving perforated cup; 3, heated cylinder; 4, electric heating element; 5, thermostat; 6, heat insulation; 7, electric motor; 8, asbestos board mounting; 9, hole; 10, supports; 11, drip pan; 12, lid to cylinder; 13, exhaust pipe; 14, blower; 15, connecting pipe; 16, venturi; 17, perforations in cup.

pounds with vapor pressures too low to be used as fumigants in the ordinary way, although these substances are easily dispersed by this condensation method. When the compound has a measurable vapor pressure, the properties of the dispersed particles composing the smoke are different from those of particles composed of non-volatile substances such as rotenone. The more volatile particles are usually less stable, because the larger particles grow at the expense of the smaller ones by a process of isothermal distillation. Naphthalene belongs in this class. There are ways to overcome this difficulty, and rather stable smokes can be prepared by special means of stabilization, one of which is to provide a large number of nuclei upon which the insecticide will be adsorbed.[3]

Experiments to show the effect of such nuclei were carried out with naphthalene vaporized in the presence of cornstalk smoke[6]. While the smoke was itself nontoxic, it provided a means of supporting the naphthalene and thereby increased the effective period of fumigation. The toxicity was in some cases seven times as great as that of naphthalene vaporized without smoke. The results of tests made in two types of cages are shown in table 1. One type had screen wire on top, which allowed the falling naphthalene crystals to enter; the other was covered to prevent this direct deposit and permitted the naphthalene to reach the flies only by diffusion through the screened sides.

Naphthalene vaporized without smoke soon forms large crystals and settles rapidly to the floor. In the presence of smoke the formation of large crystals is greatly retarded, and when it finally does precipitate, more of the insecticide is deposited on all surfaces regardless of position. This is why flies even in a cage covered on top are affected much more when smoke is present. This method of floating an insecticide on smoke should have an application in greenhouse fumigation, where it is desirable to reach insects on the underside of the leaves as well as on the top.

Another insecticide of medium volatility that was investigated was orthodichlorobenzene. Both alone and in mixture with naphthalene it was found to be effective against the housefly and the cockroach[5]. Precipitation of the naphthalene was not so rapid in the presence of orthodichlorobenzene. Later it was found that when oleic or lauric acid was added to orthodichlorobenzene a great increase in the kill was obtained (fig. 3). Both these materials produce dense smokes which may act as carrier agents, or the effect may be due to a synergistic action. Not all fatty acids give this increase, although they do produce smoke, stearic and palmitic acids being examples. The triethanolamine salts and the glycol esters of oleic and lauric acids are very active, but they

Table 1.—Effectiveness against houseflies of vaporized naphthalene[1] with and without smoke[2]

Exposure interval, in minutes	*Number of tests*	*Naphthalene*		*Naphthalene and smoke*	
		Number of insects	*Mortality in 24 hours per cent*	*Number of insects*	*Mortality in 24 hours per cent*
		In covered cages			
First 20	5	762	89.9	848	98.6
15th to 50th	4	557	10.0	838	71.0
20th to 50th	5	1038	1.8	1174	17.2
		In uncovered cages			
First 20	5	1531	99.8	1274	99.0
20th to 50th	5	2012	3.0	2060	24.4

[1]A dosage of 2 lbs. of naphthalene per 1,000 cubic feet was used.

[2]In 2 tests with 1,587 flies exposed to smoke alone in uncovered cages for 35 minutes the mortality was 1.0 per cent.

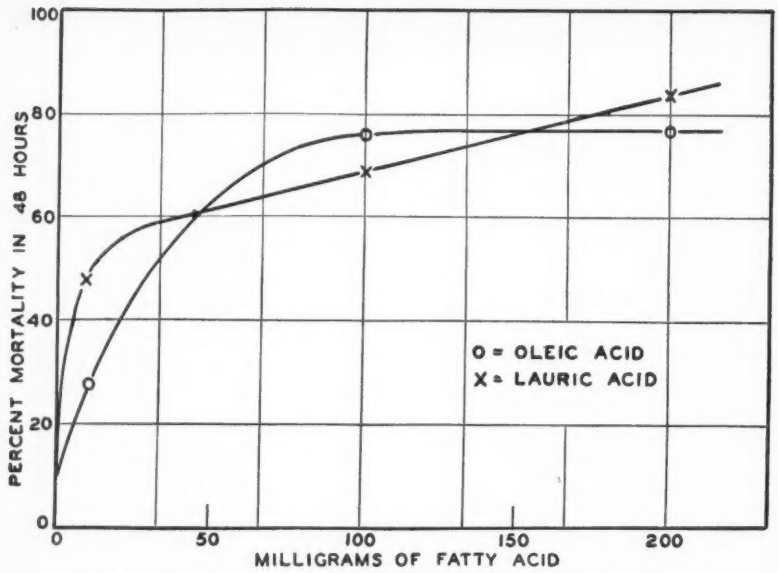

Fig. 3—Toxicity to the housefly of orthodichlorobenzene containing increasing quantities of lauric or oleic acid.

are practically nontoxic in themselves.

Tests in a Peet-Grady chamber (216 cubic feet) using orthodichlorobenzene containing 5 per cent of lauric acid at the rate of 1.5 pounds per 1,100 cubic feet killed 100 per cent of American cockroaches, German cockroaches, bedbugs, and confused flour beetles. A test in an infested room (1,100 cubic feet) at the same dosage covered the floor with dead roaches. About 5,000 were collected.

In a search for other compounds that can be effectively applied as aerosols, a large number of synthetics were tested in the laboratory. They were exposed in a 7-cubic-foot chamber for one-half hour during the day, and cockroaches were given an overnight exposure (18 hours). In most of the tests about 50 mg. of oleic acid was added as an activator. 3-Chloroacenaphthene, 2-chlorofluorene, and 3-chlorodibenzofuran were toxic to houseflies when applied at the rate of 0.02 pound per 1,000 cubic feet. The most effective against roaches were halogen compounds, such as methyl chloroacetate, beta-bromoethyl acetate, and beta-chloroethyl chlorocarbonate, most of them at a dosage of 1 pound per 1,000 cubic feet, and they were most effective with the activator.

Of all the synthetic compounds that have been tested, the most practical appears to be orthodichlorobenzene containing oleic acid or some similar substance as an activator. It produces a violent irritation which drives the insect out of its hiding place before knockdown occurs. It is not easily combustible and even depresses a flame. Its cost is comparatively low; a fumigation can be carried out for approximately 10 cents per 1,000 cubic feet. It has a low toxicity to man and animals. In tests on a few samples of fabric, metal, wood, and paint no injury was apparent. It is a liquid with a boiling point of 147° C., which is in the range that is well suited to this method of dispersion. It is a good solvent for other insecticides, such as rotenone, pyrethrum, or "Lethane," which can be added if necessary for extremely resistant insects. It has the disadvantage of being toxic to growing plants, but for the fumigation of enclosures other than greenhouses the use of this chemical should be considered.

Summary

Fumigation with insecticides in the form of a smoke or aerosol is discussed, and suggestions for the practical use of chemicals with little or no volatility are presented. Rotenone and pyrethrum and several synthetic compounds were tested on a laboratory scale. Methods of stabilizing and increasing the insecticidal action of these smokes by the addition of oleic and lauric acids are described. Naphthalene was stabilized by adsorption on cornstalk smoke. The most practical synthetic compound appears to be orthodichlorobenzene. This material was found to be effective against houseflies, cockroaches, and bedbugs.

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To Make Anti-Gas Paste

A neutralizing compound in paste form for application to shoes to protect soldiers' feet from mustard gas burns has been developed by the Chemical Warfare Service, it was announced recently by the War Department. The new preparation is applied to shoes by soldiers when they are about to enter an area that is suspected of being contaminated. The War Department announced that contracts totaling about $600,000 have been let to the following corporations for the manufacture of the protective paste: Baldwin Laboratories, Saegertown, Pa.; Ernst Bischoff Co., Memphis, Tenn.; National Oil Products Co., Cedartown, Ga.; Globe Crayon Co., Barbertown, O., and R. M. Hollingshead Corp., Camden.

A Study of Bacterial Occurrence

By WILLIAM G. WALTER and G. J. HUCKER*

New York State Agricultural Experiment Station

LAST year we did considerable work on the sanitation of eating utensils and during this study developed a method for determining the bacteriological contamination on flat surfaces (for example—dinner plates and the like). Detergents or cleaning compounds were studied as to their efficiency in cleaning eating utensils, the effectiveness of ultra violet light in sterilizing drinking glasses was tested, numerous surveys were made in public eating establishments and at Cornell University special efforts were made to set up ideal practices and procedures of dishwashing. This work was mentioned in the October, 1940, issue of *Soap and Sanitary Chemicals*. Members of your association subsequently asked us to survey the literature dealing with the presence of disease-producing bacteria on inanimate objects in public places. Our report indicated that many references were found indicating the presence or the probability of organisms causing tuberculosis, scarlet fever, sore throat, etc. being present in these places, and being responsible for the transmission of diseases, but there was a noticeable dearth of specific scientific information as to the types, survival, virulence, and transmissibility of these bacteria.

At your December meeting a Disinfectant Investigatorship was established at the New York Experiment Station and Cornell University. The purpose of this Investigatorship is:

a. To determine the presence of disease producing bacteria in public places.

b. To study the survival, the viability and the transmissibility of these bacteria.

c. To study the effect of various disinfectants on these pathogenic bacteria.

Naturally many of you are primarily interested in the latter phase and so are many sanitarians and public health officials who desire more experimental field evidence before making dogmatic statements as to what disinfectant is to be used where.

The following is an informal preliminary report of what has been done to date and what is in progress for the future.

First a study was made of the coliform organisms found in rest rooms. Let me say that these coliform organisms are associated with fecal contamination. They are tested for in drinking water to ascertain whether it is bacteriologically safe and free of typhoid, dysentery, and other intestinal bacteria. Pasteurized milk is tested for *Escherichia coli* to be certain that it has not been recontaminated.

Our procedure was to go into rest rooms in department stores, public buildings, schools, etc., and make tests on such objects as toilet seats, flush valves, water faucets, and doorknobs to see how far these organisms —indexes of fecal contamination— might be traced. In some cases they could be found on all objects mentioned, but the most striking finding was the large percentage of wooden toilet seats, and door handles, in men's and women's rooms, that harbored these organisms. In the future we plan to test the effectiveness of applying disinfectants to these surfaces and to study the effect of the ultra violet light treatment now being given toilet seats in certain public places.

The second phase of the work has been to establish the presence of hemolytic streptococci in public places—particularly in school rooms. Hemolytic streptococci are the bacteria responsible for sore throats and scarlet fever. If one swept the floor of this room he would find a great variety of these invisible bacteria.

One of our first tasks was to develop methods whereby we could grow the organisms that we wanted and inhibit the growth of undesirable organisms. We now feel that we have a method that is quite efficient in showing up the hemolytic streptococci that might be present in floor sweepings. Equipped with this method we have recently isolated these hemolytic streptococci from a theater, a bus terminal and from 17 to 23 school rooms examined.

To summarize:

1. The literature pertaining to the presence, survival and transmissibility of pathogenic organisms in public places has been reviewed.

2. A Disinfectant Investigatorship has been established at the Geneva Experiment Station and Cornell University.

3. Coliform organisms have been found in rest rooms, particularly on wooden door handles and toilet seats.

4. A method has been developed and used to isolate hemolytic streptococci from the sweepings of floors.

5. In the near future, commercial disinfectants are to be applied to areas where hemolytic streptococci have been found and the effect of these disinfectants is to be studied.

* A progress report presented at the 1941 mid-year meeting of the N.A.I.D.M. at Chicago, June 9-10.

PLANT SPRAYS

A REPORT ON THE FEASABILITY OF THE USE OF HOUSEHOLD INSECTICIDES FOR PLANT SPRAY PURPOSES

By THOMAS L. CARPENTER*

Sinclair Refining Company

IN 1937 the Department of Economic Entomology of the College of Agriculture of the University of Wisconsin initiated a research fellowship to investigate the possibility of using undiluted petroleum distillate base insecticides as dual purpose household and garden sprays. This fellowship was supported by funds from the Sinclair Refining Company and was supervised by Dr. T. C. Allen of the University with the author serving as the Industrial Fellow. This report briefly brings together certain pertinent data from the three-year investigation which terminated in 1940.

Even though crude petroleum oil is one of the first mentioned chemicals we find in the history of insect control, the interest in it prevailed but a short time, and according to Lodeman,[7] a statement made by Goeze in 1763 best explained this. He wrote: "petroleum oils are also recommended, but care must be taken in their use, since they act upon plants making them sick or even killing them."

It was not until about a century later with the advent of petroleum oil refining and the production of "coal oil" or kerosene that petroleum oils entered the insecticide picture again. The insecticidal value of this first petroleum product was known almost from the date of its first general introduction. It was originally applied to plants, undiluted, by means of a feather, for the control of citrus scale insects in 1865 and it was supposedly used as an undiluted spray for the first time in 1868. However, inasmuch as the primitive kerosene was truly of uncertain quality, the early use of undiluted kerosene insecticides proved as discouraging as the early use of crude oil. Goff[3] in 1888, reported that straight kerosene could be applied safely to some species of plants, but most others showed definite evidences of a deleterious effect.

Dilution was necessary and a long period of development of the various types of petroleum oil emulsions resulted. Highly refined distillates were eventually produced and the entomologist was again awakened to the possible use of undiluted or straight oil agricultural sprays. Accordingly, in 1932 and 1933, a number of workers reported on the atomization of low-boiling, highly refined distillates. Herbert[4] treated a number of insects and fungi with straight oils containing insecticides and fungicides. Cook[2] reported on the use of atomized straight oils containing pyrethrum for the control of the sugar beet leaf-hopper, and Lamiman[5] and Lockwood[6] reported on the control of the grape leaf-hopper. It was at this time that Dr. T. C. Allen[1] of the University of Wisconsin began his studies on the atomization of treated, low-boiling distillates for the control of various truck and garden crop insects.

All these workers reported widespread success in the control of the various phytophagus insect pests, and their positive results indicated that the undiluted, low-boiling distillate served as an ideal liquid insecticide vehicle from an insecticidal standpoint; however, no critical work appeared to have been carried out in regard to the phytocidal nature of the distillate and the feasibility of a dual purpose insecticide for household and plant spray purposes appeared worthy of investigation.

There has, in recent years, been a growing and insistent demand on the part of the users as well as the manufacturers of household sprays for a dual purpose spray. The present day stainless, odorless, and highly toxic household spray has shown widespread acceptance, and its utility would be further extended if the housewife could buy a spray to control, without restriction, the ever present pests in her garden as well as in her household.

It was with this object of exploring the possibilities of a dual purpose spray that both field and greenhouse studies were begun in the Spring of 1937. The field tests were conducted at the Petrifying Springs Truck Crop Laboratory of the University of Wisconsin at Racine, Wisconsin, and the greenhouse studies in the various greenhouse laboratories of the University at Madison, Wisconsin. Seventy-two different species of the most common ornamental, garden, and truck crop plants were used in our studies, and standard horticultural varieties of representative susceptible, moderately susceptible and

* Before 27th mid-year meeting, National Association of Insecticide & Disinfectant Manufacturers, Chicago, June 9 and 10, 1941.

tolerant species were used in the more precise experiments. All fractions of insecticide base were furnished by the control laboratory of Sinclair Refining Company or taken from the stocks of the insecticide laboratory of the university.

Known amounts of each of the various insecticides or oil fractions were applied to the test plants by means of a specially designed air pressure sprayer and turntable. This sprayer[1] which was equipped with interchangeable air and fluid nozzles differing in the sizes of their aperatures, made available the atomization of from 0.2 of a milligram to 19.0 milligrams of oil per square inch of test leaf surface. The different sprays were atomized at 35 pounds of pressure by means of a gasoline motor driven compressor in the field studies, and with an electric motor in the laboratory. In the greenhouse studies potted plants were placed on a turntable and subjected to the spray, thereby insuring a constant and predetermined deposit of spray on each leaf of a plant tested.

To duplicate these tests under field conditions, the nozzles of the field unit were held at the same distance above the plants and passed over them at a velocity approximating that at which the plants passed through the spray when on the turntable. For most practical purposes a maximum delivery of approximately 5.0 milligrams was sufficient for effective insect control, but under the conditions of our experimentation, it was often found necessary to apply greater amounts to obtain the significant results necessary in ascertaining the relative toxicity of the less injurious fractions tested.

TO outline briefly the various phases of study in our investigations, the experimentation with regard to the phytotoxicity of the distillate itself was deemed most important. This consisted of the application of a wide range of fractions, differing in their physical and chemical properties, to representative groups of tolerant and susceptible species of economic plants. These tests were conducted under field and laboratory conditions for the purpose of determining the optimum degree of safety of these various properties as correlated with plant toxicity. We also considered highly important that phase of study involving the relative phytotoxicity of the various toxic ingredients used in the present day household sprays.

Of considerable interest was the study and experimentation in regard to the relative susceptibility of plants in regard to their species and stage of growth. This consisted of applications of fractions found least toxic in previous tests, to a wide range of economic plants at various stages of growth.

Of minor importance, yet particularly significant and worthy of mention, were those phases of the investigation concerned with the relative efficiency of various hand sprayers for plant spray purposes, accumulative toxicity apparent after repeated oil sprays, and, the insecticidal properties of household sprays as applied to phytophagus insects.

As just stated, the investigation of the phytotoxic nature of the distillate base of the proposed dual purpose spray was of primary importance. In the chemical control of phytophagus insects we must recognize the fact that we are using these chemicals in connection with two colloidal systems which are very similar, as there is little fundamental difference between plant and animal protoplasm. Consequently, it is difficult to apply any chemical to the plant for the control of insects, without altering the plant's normal processes in one way or another. The entomologist is only too eager to report the benefits derived by the plants from the effected control of the parasites and thereby does not properly distinguish between the pernicious effects of the pest and the control applied, usually disregarding the latter.

Preliminary studies indicated that certain properties of the oil fractions (such as viscosity, degree of refinement, and source of parent crude) were of primary importance in the toxicity which manifests itself either by an acute toxic effect or an accumulative or chronic effect. We distinguished between these two types of injury by classifying any injury that appeared within 48 hours after the application of the spray as an acute toxic effect, and that which took form only after several weeks or more, as an accumulative toxic effect. The limits of acute toxicity are very sharp and well defined, so that one is not apt to mistake it for the chronic type of injury.

The symptoms and effects of acute injury differ according to the species of the plant. For instance: in tomato and potato it appeared as a darkening of the leaves which lost their turgidity and appeared water soaked; parsnips and celery foliage became distorted as typical of certain virus diseases; turnip, spinach, and chard showed large, irregular white areas, which after several days became dry, transparent and parchment-like; bush bean and garden pea foliage showed a loss of chlorophyll with a subsequent spotting, the spots being bounded by intercalary veins.

The information we have concerning the etiology of this oil injury is for the most part highly theoretical in substance. We know that two types of injury may result, one of a chemical nature which is associated with the degree of sulfonation of a distillate, and the other of a physical or indirect effect caused by the changing of the plant's physiological processes and which is associated with the viscosity of a distillate. The process of producing a highly refined fraction consists of treating the distillate with fuming sulfuric acid removing the chemically active ingredients associated with direct injury. We found, however, that the highest refined fractions available still showed evidences of chemical poisoning and there have been several theories advanced to explain this: first, that the supposedly inert hydrocarbons are oxidized by the sunlight to oil soluble phytotoxic asphaltogenic acids; second, that nascent oxygen resulting from the photosynthetic process may cause a reaction with the hydrocarbons to form certain oxides and peroxides which may enter into further reac-

[1] Binks Model X Spray Gun.

tions to form phytotoxic acids; third, and last, that a small fraction of the so-called unsaturates which are not removed by the acid treatment and which consist of certain sulfur compounds, heavy olefines, heavy naphthenes and small amounts of naphthenic acid cause the injury.

On the basis of these thoughts and theories, as obtained from preliminary research and study, a wide range of petroleum oil, low-boiling distillates were applied under controlled conditions to groups of tolerant and susceptible species of economic plants under field and laboratory conditions. The relative phytotoxicity of each of the fractions to these plants was determined from observations made at 24, 48, and 72 hour intervals after treatment.

The distillates employed in this study were segregated into two main groups: first, those fractions having a constant viscosity and distillation range, but varying in the degree of refinement and source of crude; second, those oil fractions having the same degree of refinement and source of crude, but varying in viscosity. A total of 38 different fractions were employed in these tests.

PRELIMINARY tests with a group of 15 fractions varying from a very light fraction having a kinematic viscosity of 1.017 centistokes and a distillation range of 300°-400° to a heavy fraction having a kinematic viscosity of 3.705 centistokes and a distillation range to 500°-600° showed that fractions of a viscosity range between 1.3 and 2.3 were the least toxic to plants, and further tests were restricted to fractions within this range.

Similar earlier tests with fractions of Midcontinent and Pennsylvania Base oils, treated with from 30 to 130 pounds of fuming acid per barrel, indicated that oils treated with but 30 to 80 pounds of acid were most injurious. In further tests, it appeared advisable to use only such fractions as were treated with 80 or more pounds of acid.

The oil was applied to the test plants at the rate of approximately 15.0 milligrams per square inch of leaf surface. In the laboratory, tests with each fraction were made in triplicate to thirty potted plants, and, in the field, tests were made in four replicates, plantings arranged in ten foot rows.

The results of this study of the properties of the base oil as related to plant injury, indicated primarily that under the conditions of our experiment, the fractions having viscosities of approximately 1.7 centistokes were the least toxic to the plants tested, and that the extremely light fractions having viscosities between 1.3 and 1.6 centistokes were more toxic than those heavier fractions beyond the determined optimum of 1.7 centistokes.

It is believed that although these light fractions are exceedingly volatile and apparently disappear soon after application, their very low surface tension allows for their rapid penetration of the stomata and underlying mesophyll tissue, with consequent injury before complete volatilization. On the other hand, even though the heavier bases apparently penetrate the leaf tissue with difficulty because of their relatively high surface tension and decreased power of capillarity, they are much less volatile and persist for such a long period of time that they do eventually diffuse through the plant tissue. Then too, these heavy fractions insulate the leaf for so long a period of time that the inhibition of such physiological processes as respiration, photosynthesis, and transpiration proves injurious. Therefore, we found that the intermediate fractions provide a happy medium wherein the base volatilizes before it has had an opportunity to penetrate the plant tissue to injure it.

In first analyzing the reactions of the various plants to the fractions of the Midcontinent crude, as a group, and those fractions of the Pennsylvania Base crude, as a group, we found that the more tolerant species showed the relative injury of the Midcontinent crude more clearly than did the susceptible species. Tomato, garden peas, turnip, Swiss chard, and bush bean showed similar degrees of toxicity for each of the fractions of the two crudes, while the more tolerant potato, beet, spinach, and cucumber showed wide differences in the relative toxicity to fractions of similar acid treatment but from different crudes. It appeared evident from our results that a Pennsylvania crude distillate treated with a hundred pounds of acid could be safely used on plants if properly applied, but that a treatment of 130 pounds of acid is necessary to insure maximum safety with distillates of Midcontinent origin. The differences between Pennsylvania base distillates treated with 100 and 130 pounds of acid were within the realm of experimental error.

The net results of this particular phase of our investigation indicated quite conclusively that a distillate having a viscosity of approximately 1.7 centistokes, which had been treated with 100 pounds of acid, could be safely used on the foliage of all species of plants, if properly applied.

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(To Be Concluded)

Mildew Prevention

While bleach is usually used to remove mildew, other measures are also of importance. Fluorides used as sour discourage the formation of mildew. The sour can be put in the starch while it is being cooked. When raw starch is used, the sour should be added directly to the load. Formaldehyde may well be used with cooked starch. Blankets should always be given a last rinse in acidified water. Harry Cohen. *The Laundryman*, No. 5, 1941.

TESTS ON CRAWLING INSECTS

EVALUATING LIQUID HOUSEHOLD INSECTICIDES AGAINST THE GERMAN COCKROACH AND BEDBUG,—A FINAL REPORT* ON RESEARCH PROJECT AT OHIO STATE UNIVERSITY

By F. L. Campbell, C. S. Barnhart, and J. M. Hutzel
Ohio State University

PART II

Lard Can Method

THIS method was developed by Barnhart in response to a demand for a test method against roaches that would simulate more closely than the settling mist method the conditions under which insecticides are applied to roaches in practice. It was designed to take into consideration the driveout of roaches from a standard place of concealment, the effect of direct spray, settling mist, and spray residue, and, if desired, the fumigating effect of the vapor of the liquid.

Equipment. The standardized container for concealment of large nymphs of the German cockroach is a white cardboard box with sliding inner tray like a safety match box. The inside dimensions are 2″ long, 1¼″ wide, and 7/16″ high. Before use the top of each box is perforated in a uniform manner with two punches, one making 1/16″ holes in each corner and the other making two ¼″ holes near the center (Fig. 7).

The test chamber assembly in which roaches in the standard box are sprayed is shown in Figures 8 and 9. It is essentially an armchair with the seat occupied by a lard can (12½″ diam. x 14½″ high). A modified DeVilbiss No. 152 atomizer is mounted on one arm and on the other arm is hinged an inverted lard can with the metal bottom replaced by glass. The chair back is double

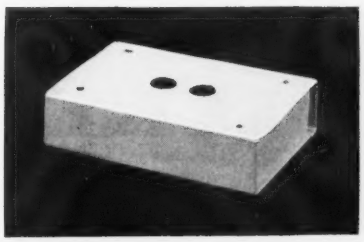

Fig. 7—Standard shelter box for roaches.

walled, communicating with a fan underneath the seat which draws air and mist from the inverted lard can into a filter.

Procedure. The test procedure is described in terms of a comparison of the effectiveness of the O.T.I. and a highly refined kerosene hereafter called "oil."

Roaches for the test are taken from dated culture jars in which adults are just beginning to appear. The roach population of several such jars is combined in a large crystallizing dish, in which the roaches are chilled in the freezing compartment of an electric refrigerator. As soon as the roaches become immobile, the nymphs, which are in the fifth or sixth instars, are counted out into 32 previously perforated test boxes, 25 nymphs per box[2]. The two central holes, from which the roaches will later emerge, are covered with a square piece of glass and the boxes are set aside for at least one-half hour for the roaches to recover their normal activity and become accustomed to the shelter.

The bottom of each of 32 clean lard cans is covered snugly with a single disk of newspaper. In each of these cans a box of roaches will be sprayed. Four doses of the O.T.I. and four of the oil will be applied. Therefore each dose will be sprayed in four different applications to four

Fig. 8—Lard can assembly open.

* Before 27th mid-year meeting, National Association of Insecticide & Disinfectant Manufacturers, Chicago, June 9 and 10, 1941.

[2]It is possible to fill the boxes without chilling the roaches: If oiled vials are laid on the bottom of culture jars containing disturbed large nymphs, some will enter the vials. Then the open ends of two vials containing roaches are brought together, the roaches tapped into one vial and counted as they crawl into the other. When 25 roaches are thus counted and isolated, they are transferred to a smaller vial which is inverted over a hole cut in a strip of celluloid covering the half opened end of a shelter box. The roaches fall into the box, which is quickly closed. It seldom happens that any insects are mechanically injured if this operation is performed rapidly and the box is tapped to keep the insects on the bottom.

boxes or 100 roaches. The 32 applications to be made are numbered in the notebook and on tags which are shuffled and drawn at random. The first number drawn represents the first test to be made. Two atomizer cups are used, one for the O.T.I. and one for the oil to save the trouble of rinsing one cup between applications. The filled cup for the first test number drawn is placed in the atomizer and the numbered tag is dropped in a lard can for later identification. This can is placed on the seat of the armchair by pushing it against a piece of rubber tubing stretched across the back of the seat. This tubing pushes the can forward against two fixed rubber stoppers on the front of the seat. Thus the can is quickly located in the predetermined position on the seat.

A box of roaches is placed in a position fixed by a templet on the center of the bottom of the can. A metronome adjusted to beat 60 strokes per minute is started. A reducing valve on the airline is adjusted to provide an air pressure of 6 pounds per square inch while spraying. The templet and the glass cover of the box are removed from the can and the top can is swung down upon the test can. With one hand on the trigger of the atomizer and with a stop-watch in the other, the trigger is pressed and the watch started on a click of the metronome. The spray from the fixed nozzle of the atomizer, which is near the periphery of the top of the test can, is driven upon the top of the box and the area immediately surrounding it. Some of the spray enters the holes in the box and contacts the roaches within. Spraying is continued through a certain number of beats of the metronome as called for by the period of spraying (dose) corresponding to the number of the test (from 2 to 24 seconds). The stop-watch is allowed to run and at the end of 30 seconds the numbers of roaches that have emerged from the box (driveout) are counted by looking down upon the bottom of the test can through the glass of the top can. Similar counts are also made at the end of 1, 2 and 3 minutes during which time mist in the test chamber is settling upon the roaches that have emerged and is entering the holes in the box. At the end of 3 minutes, the top can is swung off the test can, which is removed from the armchair and set aside uncovered for mortality counts the next day. The roaches are not transferred to unsprayed containers, because the effect of spray residue in the box and on the paper disk is to be added to the effect of direct spray and settling mist. If fumigating effect of vapor from the spray residue is to be taken into consideration, the sprayed test can may be covered with a tight fitting lid during the observation period.

During the procedure described above, the ventilating fan under the armchair is running and when the test can is removed, the fan sucks the mist remaining in the top can into the filter in the armchair. Just prior to the next application, the atomizer is rinsed with the next liquid by spraying a little of it before the next test can is placed on the armchair. This mist is taken up by the fan.

Allowing a little less than five minutes for each test, the 32 tests are completed in 2½ hours. Preparations for this series of tests of course take longer.

The next day mortality counts are made in each can and the numbers of insects found dead inside and outside the box are recorded separately and totaled. If a roach is not able to walk, it is called dead. The used test boxes are discarded.

Evaluation. Like the Peet-Grady method, which provides data on two aspects of performance, knockdown and kill, the lard can method yields two sets of data, driveout and kill.

Relative driveout is probably best indicated by a comparison of percentages of roaches driven out during the first minute by equal doses of the insecticides being compared. For example, we found that 2 cc. of the O.T.I. drove out 33.5 per cent of the roaches in one minute, whereas the oil at the same dosage drove out 7.5 per cent, a difference of 26 per cent. In another comparison 2 cc. of the O.T.I. drove out 33.7 per cent in one minute, whereas the same quantity of another insecticide drove out 18.2 per cent, a difference of 15.5 per cent. In all tests driveout by the O.T.I. was remarkably uniform and always exceeded the driveout caused by insecticides that did not contain pyrethrins.

Fig. 9—Lard can assembly closed.

Although it is possible in the lard can method to rate the killing power of different insecticides in exactly the same manner as that employed in the Peet-Grady method and in the settling mist method, we attempted to work out a system of rating that is known by specialists in biological assay of poisons to be scientifically sound. In other words, we decided to compare doses required to give a certain kill rather than kills produced by a certain dose. Such a comparison requires that at least two doses of each insecticide be applied, one killing less than 50 per cent and the other killing more than 50 per cent. The dose of each estimated to kill 50 per cent can then be read from a graph by interpolation. An example of such a comparison is shown in Figure 10. Here it is seen that the dosage-mortality line for the O.T.I. cuts the 50 per cent mortality line at a dosage corresponding to 4.5 seconds spraying time or 1.5 cc. The line for the oil (H.R.K.) cuts the 50

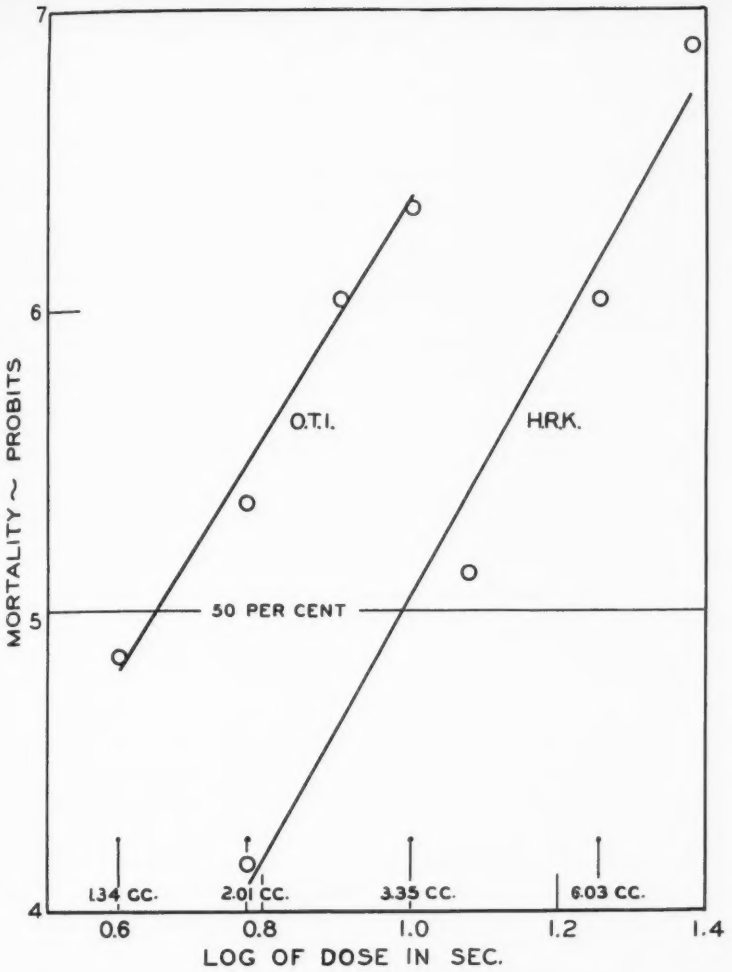

Fig. 10—Relative effect of O.T.I. and base oil on roaches (lard can method).

per cent line at 9.7 seconds or 3.25 cc. Therefore it requires 1.51 cc. of O.T.I. and 3.25 cc. of oil to produce the same kill. The ratio of these doses is 0.465[3]. If we call the effectiveness of the O.T.I. 100 per cent, then the relative effectiveness of the oil may be expressed as 46.5 per cent. An insecticide more effective than the O.T.I. would of course be rated at a figure greater than 100 per cent.

If we were to make the comparison of the O.T.I. and oil by the prevailing method, we would find that 2 cc. of the O.T.I. killed an average of 58 per cent while the same dose of oil killed an average of 10 per cent; a difference of —48.

[3]These data were analyzed statistically by C. I. Bliss, to whom grateful acknowledgment is made. He found by computation that the relative effectiveness of the oil was 45.5 ± 2.76%. It is very desirable to have an objective figure (± 2.76%) as a measure of variation, but the time required to make the computations would be excessive for anyone not highly skilled in machine computation. Dr. Bliss was well satisfied with the experimental set-up and results of the comparison that he studied.

Chamber Method

FOR reasons to be mentioned and discussed later, it was felt that the lard can method might not appeal to the Insecticide Scientific Committee of the N.A.I.D.M., except as a measure of the relative driveout properties of different insecticides. Therefore Hutzel developed a method that ignores driveout but emphasizes the effect of direct spray and makes use of a Peet-Grady chamber and atomizer, — equipment now available in most testing laboratories. The principle of the chamber method is to drive a cone of spray upon a series of insect containers so placed with respect to the spray cone that the dose of spray received by each container progressively diminishes from the center outward. One application of spray thereby delivers upon each group of insects a different average dose of insecticide, which may range, according to the set-up, from a dose that kills all the insects to one that kills none. This is the situation in the practical control of crawling insects with liquid insecticides, where the degree of control depends on the location of the insects with respect to the spray as well as upon the potency of the insecticide.

Arrangement in chamber. The official Peet-Grady atomizer is mounted at the top center in a Peet-Grady chamber with the nozzle 57 inches above the floor and directed at the center of the floor. A long metal intake tube is bent to a right angle and attached to the atomizer so that the vertical portion can be placed in a mounted tube containing the insecticide to be sprayed. This arrangement is shown in Figure 11. The air hose leading to the atomizer passes through a hole in the wall of the chamber and is attached outside the chamber to a trigger valve or cutoff, so the operator can spray from outside the chamber.

Positions for five crystallizing dishes (3″ diam. x 2″ deep) are marked on the floor of the chamber. Instead of placing these dishes in line out from the center, they are located on different radii from the center so that the center of the first container is 7½″ from the center of the floor, the second 8¾″, the third 10½″, the fourth 13½″ and the fifth 16½″. The distance between centers of containers is 6″. Thus the containers appear to be arranged in spiral fashion as shown in Figure 12. The purpose of the spiral arrangement is to prevent the wall of one dish from interfering with the deposition of spray in the next dish. Figure 13 shows how rapidly deposit declines with distance from the center of the spray cone.

Procedure. Because most people thinking of roaches or bedbugs visualize the adult rather than the nymph, it was decided to use adult

THE EFFECTIVE INSECTICIDE

. . . and the Puzzle of the Drooping Sales Curve

Premise:

A manufacturer had a well established product, high knock-down-and-kill, good sales distribution, substantial promotion.

Problem:

Stagnant sales curve. Fine merchandising, new sales, *BUT* poor repeat business.

Analysis:

Study revealed consumers changing to other brands because finished insecticide irritated nose and throat passages when sprayed.

Solution:

Switched over to pure pyrethrum extract, eliminating objectionable feature. Steady repeat business. Sales curve going up.

PYREFUME, Penick's perfected concentrate, is made only from mature pyrethrum flowers, and will not cause irritating, acrid or peculiar reactions when inhaled by humans. And so, *it does not antagonize users.* Another important sales-producing factor is the terrific knock-down-and-kill power of PYREFUME-made insecticides not only against flies, but also roaches, bed bugs, fabric moths, and silver fish.

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THE WORLD'S LARGEST BOTANICAL DRUG HOUSE

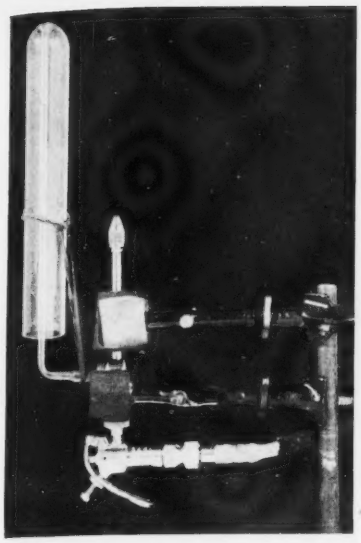

Fig. 11—Atomizer set-up in Peet-Grady chamber for chamber method.

male German roaches or bedbugs in these tests.

For roaches, the crystallizing dishes are lined with a circle of filter paper with the position number written on it, and the walls are oiled to prevent their escape. Ten adult male roaches, taken from dated rearing jars as previously described, are placed in each dish. A newspaper is spread on the floor of the chamber (the usual gray bogus paper would be better) to absorb the insecticide. The paper is pierced by brads in the floor that mark the positions of the dishes, which are then placed on their appointed spots. The sample of insecticide to be sprayed (30 cc.) is then placed in a test tube which is attached to the intake tube of the atomizer. The chamber is closed and the insecticide is sprayed upon the roaches in the dishes at a pressure of 12 pounds per square inch. Air is delivered until one second after all spray has been discharged. The dose gradient on the floor of the chamber can be seen during spraying in two ways: (1) If the spray is dyed red with Sudan III, the intensity of color of the sprayed area diminishes from the center outward. (2) When the O.T.I. or a pyrethrum spray is applied, the insects are first activated and first paralyzed in dishes nearest the center, the same effect coming later in the outer dishes.

After spraying, the chamber is kept closed until six minutes have elapsed from the beginning of spraying. During this time mist is settling on the roaches. At the end of this period the chamber is opened, the ventilating fan is turned on, and the operator enters the chamber with five marked one-half gallon glass observation jars. The roaches are transferred to these jars with food and water. After five minutes more, knockdown counts are taken in the observation jars, which are put away in an incubator at 77° F. and 40 per cent R.H. until mortality counts are made the next day. Meanwhile the chamber is made ready for the next test.

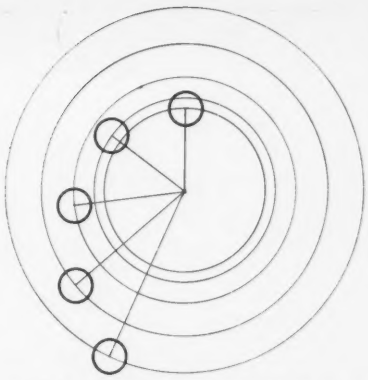

Fig. 12—Position of dishes on floor of Peet-Grady chamber for chamber method.

Bedbug tests are made in the same way in the same dishes with the following exceptions: The dishes

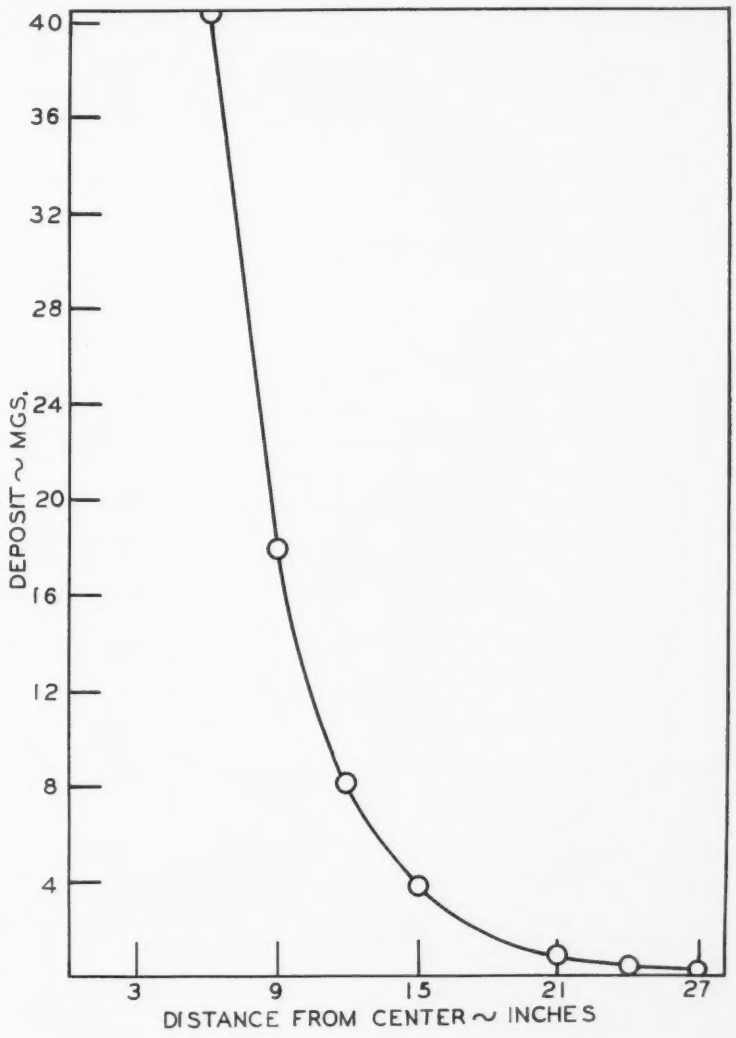

Fig. 13—Distribution of spray deposit on floor of Peet-Grady chamber in chamber method.

Table 2. Results of a chamber test of an unknown insecticide vs. O.T.I. against adult male German cockroaches. Ten insects per dish.

Position	O.T.I. Number paralyzed	O.T.I. Number dead, 24 hrs.	Unknown Number paralyzed	Unknown Number dead, 24 hrs.
First comparison				
1	10	10	10	10
2	10	10	10	9
3	10	10	10	8
4	10	4	10	0
5	10	0	10	0
Total	50	34	50	27
Second comparison				
1	10	9	10	9
2	10	7	10	10
3	10	6	10	4
4	10	1	10	0
5	10	1	10	0
Total	50	24	50	23
Third comparison				
1	10	10	10	10
2	10	10	10	5
3	10	2	10	2
4	10	0	10	0
5	10	0	10	0
Total	50	22	50	17
Fourth comparison				
1	10	10	10	10
2	10	10	10	9
3	10	5	10	1
4	10	2	10	2
5	10	0	10	0
Total	50	27	50	22

Totals

Position	O.T.I. Knockdown Per Cent	O.T.I. Kill (24 hrs.) Per Cent	Unknown Knockdown Per Cent	Unknown Kill (24 hrs.) Per Cent
1	100	97.5	100	97.5
2	100	92.5	100	82.5
3	100	57.5	100	37.5
4	100	17.5	100	5.0
5	100	2.5	100	0.0
Total	100	53.5	100	44.5

need not be oiled. A circle of 1½" filter paper is placed on the larger filter paper in the crystallizing dish. After the spray application, the smaller filter paper is placed in the bottom of a 1½" Petri dish to which each group of bedbugs is transferred. These dishes are covered with cheesecloth. Thus the contact effect of the spray residue continues to operate during the observation period. The volume of spray applied to bedbugs is 30 cc. and the time from beginning of spraying till opening of the chamber is 2½ minutes. Temperature control recommended for the Peet-Grady tests is satisfactory for chamber tests on roaches and bedbugs.

Evaluation. The numbers of tests so far made with this new method are insufficient to permit a definite recommendation on evaluation. The best that can be done is to present results of comparative tests of the O.T.I. and a pyrethrum - synthetic spray against roaches and results of tests of the O.T.I. vs. a synthetic spray against bedbugs.

Results on roaches in Table 2 show that in each of four comparative tests both the O.T.I. and the unknown paralyzed all roaches in all dishes, that in each test the kill declined from 90 to 100 per cent in the dish nearest the center to 0 to 10 per cent in the dish furthest removed from the center, and that the total kill in each comparative test was greater for the O.T.I. than for the unknown. The 48 hour kill was the same as the 24 hour kill in all cases. Adding up the results of the four tests, we find that the O.T.I. killed 53.5 per cent of 200 insects, while the unknown killed 44.5 per cent of the same number. Thus it is practically certain that the unknown was less effective than the O.T.I., but we are not prepared to say that 53.5-44.5 or —9 is a figure truly representing the relative effectiveness of the unknown. Theoretically it would be best to so locate the dishes that the average quantity of oil deposited in each would represent a known logarithmic series of doses. Then these doses would be plotted on logarithmic cross section paper against a probit scale of corresponding mortalities. The ratio of doses producing a 50 per cent kill as read from the graph would then represent the relative effectiveness of two insecticides, as explained under the lard can method.

Results on bedbugs in Table 3 show the same decline in effectiveness of the spray from the center outward. The unknown is obviously more effective than the O.T.I.

Discussion

LET us assume that one of the three foregoing methods will be chosen by the N.A.I.D.M. as a tentative method for the evaluation of liquid insecticides against roaches and bedbugs and that it will be studied in cooperating laboratories of the association. Then we may ask on what basis the choice should be made.

The primary basis for choice is that the method selected should give relative results that represent relative effectiveness of insecticides as used in practice. It is not possible, however, directly to correlate

Table 3. Results of a chamber test of an unknown insecticide vs. O.T.I. against adult male bedbugs.

Position	O.T.I. No. of insects	O.T.I. No. dead 40 hrs.	O.T.I. % dead 40 hrs.	Unknown No. of insects	Unknown No. dead 40 hrs.	Unknown % dead 40 hrs.
1	20	20	100	20	20	100
2	19	17	90	19	19	100
3	18	9	50	21	21	100
4	19	12	63	21	20	95
5	19	6	32	20	12	60
Total	95	64	67	101	92	91

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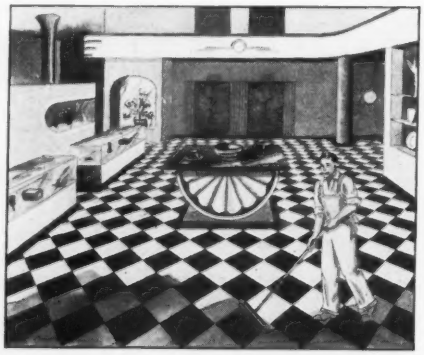

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laboratory results with practical results, because the latter depend not only on the inherent toxicity of the insecticide but on many varying and uncontrollable factors that are never twice alike, e. g., the quantity, rate, spray characteristics, and location of the application; the kind, intensity, and location of infestation, and the environmental conditions at the time of application. Since we cannot *know* which laboratory method best measures practical relative effectiveness, we must depend on general experience in and out of the laboratory to decide which method is *most likely* to give practical results and we must also take into consideration the initial cost of equipment and operating costs per test.

What is the relative importance of factors influencing roach control with liquid insecticides, aside from the composition of the insecticide? Our experience indicates that the most important factor is the quantity of insecticide placed upon the body of the roach and that it makes no difference in effect whether a given quantity is applied in the laboratory as a direct spray or as a settling mist.

Driveout of roaches may help or hinder control depending on the situation. If activated roaches run into the spray they will receive more insecticide and better control will result. If, however, they run away from the spray, as they may if there is a back exit from their hiding place, the driveout of roaches may reduce control. Therefore it does not seem essential to include a measure of driveout in a routine laboratory test.

The residual effect of a liquid insecticide is regarded as unimportant in roach control because the behavior of roaches does not give spray residue much chance to operate. If a sprayed roach is able to run, it will not remain on a treated surface. On the other hand an unsprayed roach is not likely to enter a treated area so long as residue remains that would affect it. In other words, the mobility of roaches tends to minimize the effect of spray residues of prevalent liquid household insecticides. We therefore favor the transfer of roaches to unsprayed containers after application of insecticides in laboratory tests.

The effect of vapor from prevalent liquid household insecticides is negligible against roaches; partly because of their mobility, but chiefly because lethal concentrations are not reached in sprayed rooms. There is no justification at present for inclusion of the effect of vapor in a routine laboratory testing method.

As the behavior of bedbugs is not the same as that of roaches, the factors influencing control are somewhat different. When bedbugs are sprayed in their hiding places, they do not scurry away as roaches do. Even pyrethrum sprays do not greatly activate bedbugs, which tend to remain in the sprayed area. This behavior has a bearing on the design of a laboratory testing method.

As in the case of roaches, the quantity of insecticide that is applied to the bodies of the bugs is the primary factor in control. Our tests show that it makes no difference whether a given quantity is applied as a direct spray or as a settling mist. Because bedbugs are slow to leave a sprayed area, the effect of spray residue is of real importance and should be included in a laboratory test by keeping the bugs during the observation period on the sprayed surface. Our tests have not so far enabled us to decide whether the effect of spray residue is due to liquid or vapor, but we know that the relative effectiveness of different insecticides depends on whether or not bugs are exposed to spray residue and we believe that it is desirable from the practical point of view to include the effect of spray residue in a laboratory test.

IN view of the foregoing discussion we recommend that the N.A.I.D.M. try either the settling mist method or the chamber method. We do not recommend the lard can method for roaches because we believe that its principal feature, measurement of driveout, is unnecessary for a routine test, that it requires too much time and space for economical operation, and that it is not suitable for tests against bedbugs.

Of the two methods recommended for trial, we prefer the settling mist method for the following reasons: (1) It is the most rapid and precise of the three methods, (2) it requires the least space of the three methods, (3) it gives results that are in line with practical expectations. Lest doubt still be expressed about the validity of the last statement, it may be said that insecticides in question have given practically the same results relative to the O.T.I. by all three methods.

For those who do not have the Barnhart settling mist tower, the chamber method may have a special appeal, because so little new equipment is needed to operate it. However, it must be pointed out that the chamber method is slower than the settling mist method and is mechanically less precise.

It is not necessary that newly hatched insects be used in the settling mist method, nor that adult insects be used in the chamber method. However, the number and uniformity of insects available for test purposes (the limiting factor in output of roach and bedbug tests) will be greatest when newly hatched insects are used.

In all our work with roaches and bedbugs the O.T.I. has been used as the standard of comparison. We do not know and are not able to find out whether the O.T.I. is a reasonable standard for tests against roaches and bedbugs. Because of its use in the official Peet-Grady method, the industry has come to believe that an insecticide that is less effective than the O.T.I. against houseflies is practically worthless. This interpretation has been carried over by certain members of the N.A.I.D.M. to the results of our tests against roaches and bedbugs. If we find that A's insecticide is less effective than the O.T.I. against roaches, he assumes that we regard it as worthless and is insulted

(*Turn To Page* 121)

PYRETHRUM OINTMENT

A Report on Its Use in the Control of Lice and Scabies

By WALTER K. ANGEVINE, M.D.

Medical Officer, Washington, D. C. Penal Institutions

DURING the latter part of November, 1940, a survey made at the District of Columbia Jail showed that 7 per cent of the prisoners admitted during that period were infested with lice, and approximately 2 per cent were suffering from scabies. These averages were thought to be rather high, and in order to ascertain the degree of accuracy of this situation over a longer period, tabulations were made of the prisoners admitted from December 1, 1940 until April 12, 1941. During this period 6,676 prisoners were received. Of this group 1,504 were infested with lice of one or more species and 279 with the itchmite, *Sarcoptes scabiei*, commonly referred to as scabies. This revealed a more startling picture. The averages here represent more than 22 and 4 per cent, respectively.

The alarming significance of these statistics lies in the fact that both the body and head lice transmit typhus, relapsing and trench fevers. They are transmitted by way of the excreta, the virus gaining entrance through the punctured wound made by the louse while feeding, or scratched in by the individual. Lice are equipped with three stylets inside of the mouth. They are long and sharp, and when protruded through the mouth orifice and apposed, make a tube through which a secretion from their salivary glands empty into the subdermal tissues of their host. The purpose of this secretion is to dilate the capillaries of their human victims so that the blood flows more freely. It is thus while they are feeding that excreta is passed which contains the virus transmittable through the punctured lesions of the skin. Mueller and Urizio, *Riforma med.*, 1919, 35 : 734 demonstrated that typhus fever could be transmitted even without the bite of the insect. Mueller himself contracted typhus fever as the result of an accident, in which an emulsion of lice feces spilled on his hands, and the possibility is cited that syphilis and other infections may be transmitted mechanically by lice as well as other biting insects. This may seem pertinent when it is considered that 15 per cent of those committed to the District of Columbia Jail for felonies are diagnosed as having syphilis, some in the infectious stage.

The cases of parasitic infestation coming under the author's observation have been preponderantly *Pediculous Vestimenti* or *Corporis*. These are the clothes or body lice. The eggs or nits, which receive the cement material in the oviduct of the female are laid and firmly cemented to fibers of clothing or body hair. At ordinary temperatures which exist between the clothing and the body, they hatch in from seven to ten days. A complete cycle, from egg to egg, requiring about 16 days. The average life of the body louse is from 35 to 40 days, and the female under ideal conditions, may have as many as four thousand offspring during her lifetime.

Of the numerous parasiticides used orthodoxly in combatting such pests, none has been found by this writer to be as thoroughly efficient or as applicable for institutional use as pyrethrum. It is non-poisonous to all warm-blooded animals, including man, and may be ingested without any harmful reaction.

The ideal method of employing pyrethrum to eradicate pediculosis and scabies is by incorporating the toxic principles into an unguent. This must be prepared so that it is easy to apply, easily removed with the aid of soap and water, capable of being stabilized against rapid decomposition, and inhibitory to skin irritation. Unfortunately, the various pyrethrum concentrates obtainable on the open market do not lend themselves to these requirements, nor are they adaptable to pharmaceutical prescription. Judging by the inquiries made from the review "Pyrethrum in Medicine" *Medical Annals*, D. C., 1:21 (1941) and *Soap & San. Chem.* 3:101 (1941) on the subject of pyrethrinated ointment, it has become evident that this was not generally understood.

Of the various pyrethrum concentrates investigated in a series of experiments, each presented some objectionable factor, either from a chemical or dermatologic point of view. All were discarded in favor of the residue to be found after the pyrethrinated oleoresins are extracted from the chrysanthemum flowers by the cold process. This material, once a waste product before the advent of modern reclaiming methods, is a jelly-

like mass consisting of involucral scales composed of sclerenchyma, collenchymatous cells, pollen grains, fragments of the corolla and of its epidermis and papillae, together with large quantities of fats, waxes, fatty acids and other known and unknown substances. When the flowers used have been carefully selected, the unrecovered pyrethrins in this jelly will assay at approximately 6 per cent.

On the premise that so many individuals were known to be allergic to ragweed, and that both ragweed and pyrethrum were of the order *Carduales*, patch tests were made in an endeavor to locate the allergic substance. These patch tests definitely placed the pyrethrum allergen in the resinous content, which when separated from the oleoresinous extract of pyrethrum flowers, gave skin reactions in 48 hours to 60 per cent of the individuals tested. The remaining 40 per cent represented a group both negative and failing to cooperate.

The pyrethrum jelly, or residual product of the cold extraction process represents a material from which most of the resins have been removed. Patch tests with this material gave further confirmation that the allergen lay in the resins. In the author's opinion, this pyrethrum residual jelly offers the ideal parasiticidal medium not only because it has been relieved of most of the resinous material in the extraction process, but because of its blandness as an emollient, which alone would be most difficult to synthesize.

Pyrethrins are rapidly decomposed by hydroxides, actinic light and oxidizing materials. These facts were carefully considered in the preparation of a pyrethrinated unguent so that the carrier aside from blending homogeneously, would be synergistic with the pyrethrum jelly. Petrolatum alone offered such a medium, in contradistinction to the hydrous wool fat used in the Sweitzer and Tedder experiments. The petrolatum must be of a high melting point in which many of the olefines have been distilled off, leaving more of the higher paraffin series of hydrocarbons. It may be recalled that these paraffin hydrocarbons can not be readily oxidized, lending, in consequence, antioxidant properties to the pyrethrins. The whole mixture has been found to be easily removed from the hair with the aid of soap and water and to exhibit a solvent action on the "cement" by which nits are affixed to the hair structures.

In this investigation, the author was concerned in finding an inhibitory factor which might prevent such remaining allergic substances from entrance into the lymphatic circulation. Tests were made on the mesenteries, tongues and webbing of frogs and on the ears of white rats. Numerous vasomotor constrictors were used with a view to obtaining a topical, capable of constricting capillary action. On the theory that vasodilators should exhibit a constricting action in weak concentrations, many such substances were used in these tests. Crystalline dimethyl methylene ether of allyl tetroxybenzene appeared to produce this effect and was more prolonged in its action than the other chemicals used.

With these materials an unguent was prepared and termed A-200 Compound, for convenience. In order to determine its prophylactic properties against allergic reaction by adsorption, petrolatum (USP), pyrethrinated 2 per cent with commercial oleoresin of pyrethrum flowers was used for control, and patch tests were made with both materials. Twenty per cent reacted positively to the control in 24 hours, and 40 per cent had positive skin reaction in 48 hours. All were negative to A-200 Compound in 24 and 48 hours.

When this ointment is applied the lice curl and die within a few minutes. Even when spread lightly over infested areas tiny parasites may be seen to back out from their retreats and undergo convulsions. Since pyrethrum is a central nervous toxin to cold-blooded animals, death is preceded by paroxysms familiar to all who have watched its action.

In 1,504 cases of pediculosis treated with A-200 Compound, not one required a second application, and in 279 cases of both pustular and non-pustular scabies, three applications cleared up the most severe conditions without the customary scrubbing adjuncts.

An important fact is that in the large majority of cases treated, a single application destroyed both the vermin and the eggs, and there is not one instance of dermatitis or skin irritation to report in the use of this compound. Its parasiticidal action is both spectacular and decisive and nits contacted with the unguent have failed to incubate, the miscroscopic studies revealing that they were disintegrated.

Cattle Spray Testing

(*From Page* 97)

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Tests On Crawling Insects

(*From Page* 115)

because he knows that it has controlled these insects in practice. He does not believe that there is anything wrong with his insecticide but he does believe fervently that our method of testing is a travesty of justice. His conclusion is natural, but is based on the false premise that an insecticide less effective than the O.T.I. is worthless. Suppose, as may well be possible, that the O.T.I. is an excellent insecticide for roach control and that A's insecticide, though less effective, is still sufficiently potent to give good control when properly applied in practice. If that is true, then a different and less potent O.T.I. is needed for roach tests so that A's insecticide will be superior to it, rather than inferior.

In the case of bedbugs, let us assume that the O.T.I. is less potent than it should be to represent an insecticide that gives fair results in practice. Then a more potent O.T.I. is needed for bedbugs.

It is very difficult to determine by practical tests the strength of a pyrethrum spray or the composition of any other spray that would best represent a fair insecticide for roach or bedbug control. For example, we attempted to throw some light on the question by observing the results of applications of the O.T.I. and other insecticides against bedbugs in a local institution. The applications were made by an experienced pest control operator who did such a thorough job that all insecticides gave a complete kill, leaving us still in the dark.

Until the association is ready to accept the present O.T.I. as a standard for tests against crawling insects or is prepared to propose other standards, we feel that there is no serious objection to continued tentative use of the present O.T.I. for crawling insects, provided it is understood that the practical effectiveness of the O.T.I. is unknown and that insecticides that are less effective than the O.T.I. are not necessarily worthless.

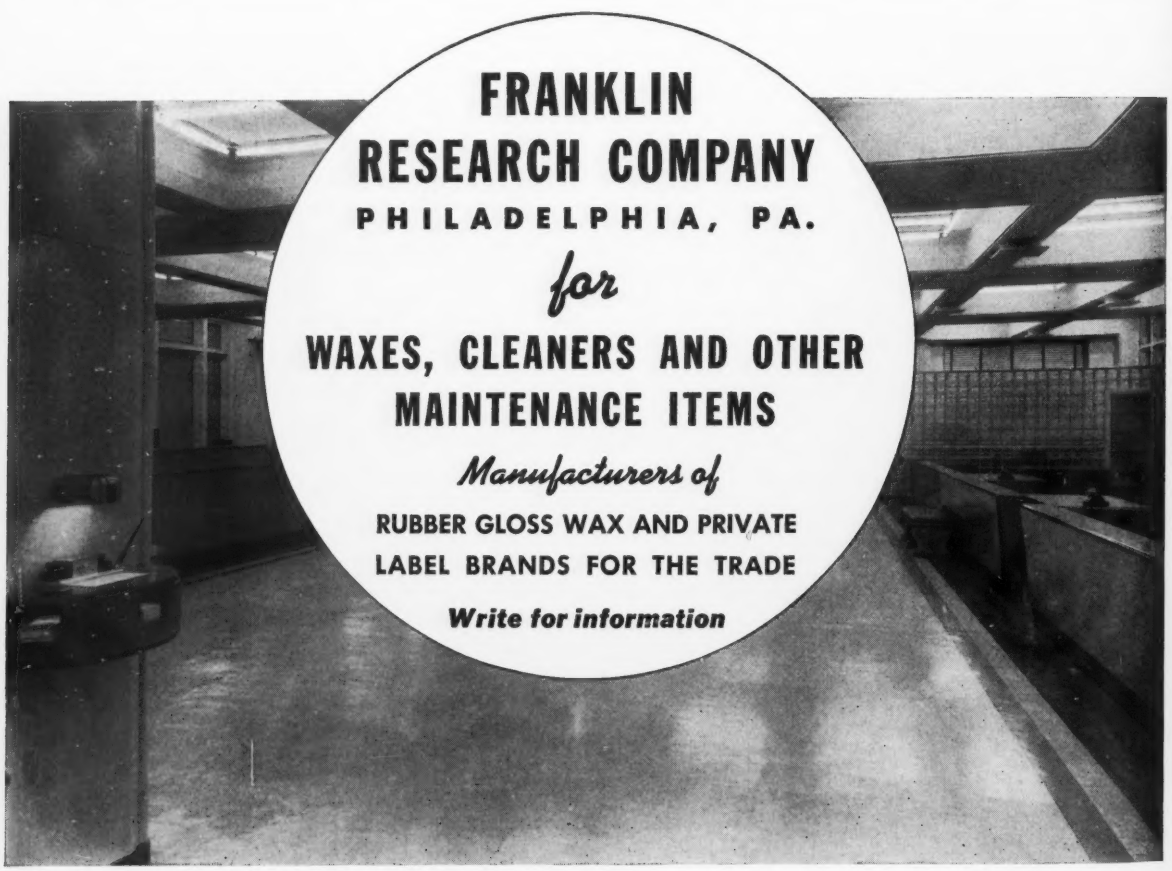
What conclusions can be drawn from results of laboratory tests of an unknown vs. the O.T.I. against crawling insects? If in comparative tests A is less effective and B more effective than the O.T.I., the buyer may confidently believe that in the long run B will give better results in practice than A. He should not conclude that A will not control crawling insects when properly applied nor should he exclude A from consideration of purchase, unless his arbitrary specifications call for an insecticide more potent than the O.T.I.

The tendency, of course, will be to call for an insecticide more potent than the O.T.I. against roaches and bedbugs. This may or may not be necessary, but from the point of view of the buyer it can do no harm, so long as he can buy such an insecticide for a reasonable price.

The adoption of a precise official method for crawling insects, no matter what it may be or what standards are used, will result in a general improvement of these insecticides, as was the case with fly sprays. Manufacturers who accept the results of these tests and are guided accordingly will be the first to profit and everyone concerned will ultimately be benefited.

Summary

The final results of four year's work with the N.A.I.D.M. are summarized. Methods are described for rearing the German cockroach and the bedbug as test insects for the evaluation of liquid household insecticides. Three methods for making such tests are described and examples of results are given. Two of these methods (Barnhart's settling mist method and Hutzel's chamber method) are recommended for trial by the N.A.I.D.M. for possible official adoption. The interpretation of test results is discussed.



NEWS...

Announce NAIDM Committees

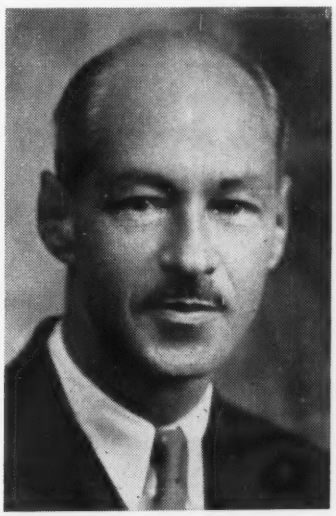
William J. Zick, president of the National Association of Insecticide & Disinfectant Manufacturers, recently announced the appointment of the following convention committees for the December, 1941, meeting: program—R. F. Joyce, chairman, C. E. Smith and J. A. Marcuse; arrangements — Ira P. MacNair, chairman, John Powell and R. W. Bjork; entertainment—J. B. Magnus, chairman, Charles Opitz and L. J. LaCava. Also the following members have been added to the personnel of the sanitary specialties scientific committee: William Pollnow, Harry Lawson, T. P. Annon and A. Fabry. These appointments are in addition to the committee members named in January.

Twi-Laq Absorbs Nu-Life Labs.

Twi-Laq Chemical Co., Brooklyn, it has just been announced, has taken over the trade marks, packages and good will of Nu-Life Laboratories, formerly of 1476 Fulton Street, Brooklyn. Twi-Laq is now marketing the wax "Haddon Hall," as well as the Nu-Life line of metal polishes and furniture polishes.

Leonard Joins Orange Mfg. Co.

Dr. Mortimer D. Leonard, well known entomologist, has just joined the staff of Orange Manufacturing Co., Orlando, Fla., where he will conduct research work in the field. Dr. Leonard has an impressive background of technical training and experience. He was graduated from Cornell University in 1913 and received his Ph.D. from the same university in 1921, specializing in entomology and plant pathology. During the World War he did entomological work for the U. S. bureau of entomology as well as the N. Y. State Food Supply Commission and Pennsylvania State College. He has since served as entomologist for N. Y. State College of Agriculture, as acting state entomologist for New York, and as chief of entomology of the government of Puerto



DR. M. D. LEONARD

Rico. Among other activities, he has held posts with the following companies: Bowker Insecticide Co., New York; Florida Agricultural Supply Co.; John Powell & Co., New York; Tobacco By-Products & Chemical Co., and DuPont.

Indian Head Mfg. Co. Moves

Indian Head Manufacturing Co., St. Paul, Minn., glass cleaners and fly sprays, has just moved to 222 Eagle St. Company was formerly located at 693 Raymond Ave.

Garfield Williamson Moves

Garfield Williamson, Inc., manufacturer of plant sprays and other insecticide materials, fertilizers, and allied products, has moved its offices to the plant and warehouse at 1072 Westside Ave., Jersey City, N. J. The company, formerly located at 53 Park Place, New York, moved to New Jersey on July 1 last. The firm was established in 1909. It has recently announced a new derris extract, giving clear solutions in petroleum oils, under the name of "Stazin."

Urge Insecticide Coloration

A resolution urging the use of distinctive colors for economic poisons was recently adopted at the annual meeting of the Western States Association of Food and Drug Officials held at Portland, Ore. Text of the resolution is as follows:

"WHEREAS There have been recorded many fatalities due to the accidental contamination of flour and other similar foods with dangerous economic poisons resembling in appearance certain foods, and

WHEREAS This contamination takes place in households in the preparation of meals, therefore

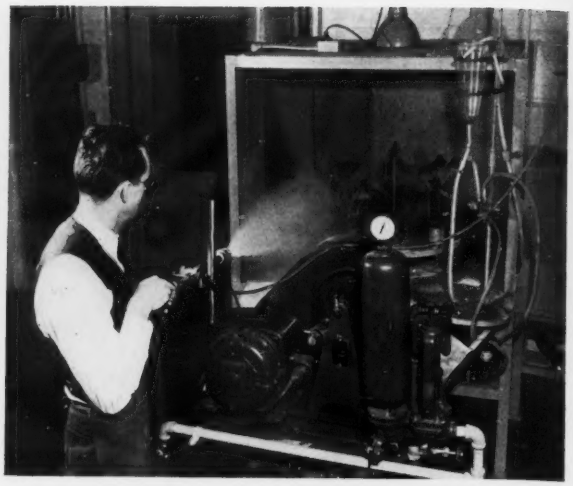
BE IT RESOLVED That this Association go on record as urging prompt preventive measures be taken to prevent these occurrences either by legislation or by concerted agreement on the part of manufacturers of economic poisons to use a distinctive color in the products and that a copy of this resolution be sent to: (National Association of Insecticide and Disinfectant Manufacturers, New York; Manufacturing Chemists' Association, Washington, D. C.; Agricultural Insecticide & Fungicide Association, New York.)"

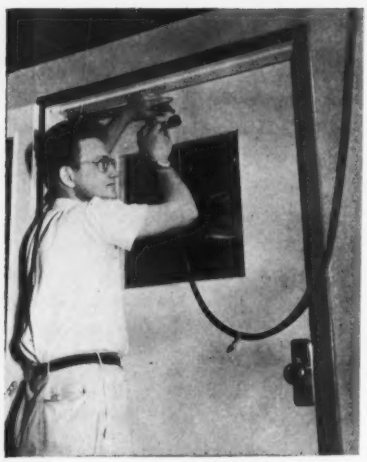
Robins & Co. Move

G. S. Robins & Co., St. Louis, sanitary chemicals, formerly at 316 S. Commercial Street, have just moved to 126 Chouteau Ave.

Fire at Exterminating Corp.

Disinfecting and Exterminating Corp., New York, celebrated the Fourth of July in a mild way with a medium-sized fire on the premises. Little damage was done to the plant itself but the fire produced a leak in the refrigeration system and the escaped gas temporarily incapacitated 28 firemen. The fire was confined to the building where it started and was quickly extinguished.





A three-story laboratory, devoted exclusively to pest control research, has recently been opened by E. I. du Pont de Nemours & Co. at Wilmington. Photo at upper left shows test for effectiveness of fungicidal preparations. Effect on wood, rope, fabrics, etc., are studied. Upper right, plant spraying apparatus duplicates effect of pressure sprayers used in the field. Lower left, the usual battery of Peet-Grady chambers for fly spray testing forms an important part of the laboratory test equipment. Lower right, special sprayer set-up for control of codling moth on apples, sprays the suspended test fruit from all angles.

Nico-Dust Occupies New Plant

Nico-Dust Manufacturing Co., division of Stauffer Chemical Co., San Francisco and Los Angeles, has just moved into new quarters on the Stauffer property at 3200 East 26th Street, Los Angeles. The new steel and concrete building is said to be completely equipped with the most modern type of insecticide manufacturing machinery and apparatus. A research laboratory and insectary are features of the new factory.

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New Insect Repellent Lamps

Incandescent lamp bulbs which give out a type of light designed to repel insects have recently been put on the market under the trade name "Save Lamps" by Save Electric Corp. of Toledo, Ohio. According to the manufacturer, the red and orange values of the light spectrum repel insects while the violet end of the visible light spectrum has an attraction for phototropic insects. The translucent yellow glass lamps are suggested for lighting open air camps, pavillions, swimming pools, resort concessions and the like. They are available in sizes from 25 watts to 1500 watts and range in price from 20 cents to $6.00 a bulb.

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Boyle Co. Takes Over Two Firms

A. S. Boyle Co., Jersey City, parent company to American Home Products Co., recently purchased Keefe Chemical Co., Boston, and Salem Chemical & Supply Co., Salem, Mass., and is now distributing the products of the newly acquired companies. Products taken over by the Boyle Company now being manufactured in Jersey City include "Creole," disinfectant, and "Witch Flowers," weather forcasting novelty, of the Salem Company, and "Silver Label Brand Germicide" of Keefe Chemical. All these products are now being advertised nationally. Distribution will be handled by A. S. Boyle Co. through the usual channels.

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Chi. Continuing Rat Campaign

G. C. Oderkirk, specialist in rodent control with the U. S. Department of the Interior, conferred on July 10 with members of the Women's City Club of Chicago, in connection with the organization's anti-rat campaign in that city. Rat etxermination as a contribution to national defense was discussed. Mrs. John Sharpless Fox, president of the club stated. She also reports that the women's organization is considering a proposal that Chicago's mayor set aside a week early this fall as "Rat Extermination Week."

Pea Aphis Conference—Sept. 17

The annual conference of persons interested in all phases of pea aphis control will be held September 17, 18 and 19 at Okee Lodge, Okee, Wis. Interested parties are invited to attend and participate, it is announced by H. F. Wilson, department of economic entomology, University of Wisconsin.

Control Insecticide Exports

Insecticide materials including pyrethrum, cube (timbo or barbasco) root, cube root powder, cube root extract, derris (tuba) root, derris root powder, derris root extract, rotenone and red squill were subjected to export control under a recent Presidential proclamation which became effective July 23. The order was incorporated into export control schedule No. 12 by administrator of export control, Brig. Gen. Russell L. Maxwell. Other items added to the list are acetic acid, acetic anhydride, methanol, acetone, coconut shells, coconut shell char, phenol-formaldehyde resins and urea-formaldehyde resins.

Mothproofing Composition

A new mothproofing compound has been announced by the Larvex Division, Zonite Products Corp., New York. This material, known as "Wash-Fast Larvex," is applied to wool goods during the dyeing operation. Extensive tests on wool yarn, blankets, etc., have shown that the mothproofing effect is retained after as many as 10 commercial launderings. The compound is said also to withstand exposure to dry cleaning and sunlight. The product is highly soluble and has no deleterious effect on either dye or material. *Textile World*, p. 94, June 1941.

King New Watkins Manager

E. L. King, Jr., was appointed vice-president and general manager of the J. R. Watkins Company, Winona, Minn., effective June 15, according to an announcement by E. L. King, president of the company. Mr. King, Jr., has been active in the affairs of the Watkins Company as assistant to his father for several years past. He is taking over

E. L. KING, Jr.

the active direction of the company's affairs. Other changes in the J. R. Watkins Company include the transfer of D. C. Alexander, vice-president, to the Newark, N. J., branch of the company where he will be in general charge. Ralph Boalt, vice-president of the company, has been transferred to the Oakland, Calif. plant and will be in charge there.

Discuss Pest Control in L. A.

Pest control recommendations for the summer and fall were discussed at a series of 11 meetings held during July in Los Angeles county under the auspices of the agricultural extension service. Among the speakers were Arley Kendall, in charge of the Los Angeles county insectary, and H. H. Wilcomb, deputy county agricultural commissioner.

Conn. P.C.O.'s Issue Bulletin

The Pest Control Association of Connecticut has just distributed copies of a four-page folder which lists the members and aims of the Connecticut group and outlines a plan for a rat control campaign. In the folder, the public is warned against "itinerant rat control specialists" operating in the state.

Suggest NaF Conservation

Conserving stocks of sodium fluoride by mixing the material with from 30 per cent to 50 per cent of pyrethrum is suggested by the Professional Exterminators Association, Inc., New York, as a means of ameliorating the supply situation. Similar percentages of flour, starch, talc or marble dust are suggested as cheap inert diluents. "This cutting of fluoride content," says the association bulletin, "will not materially affect its potency for service work."

Rotenone in Red Scale Control

Increased killing power on red scale in citrus groves is said to result when rotenone is added to an oil spray, although a rotenone spray alone is not sufficient for red scale control. Previously rotenone had proved successful in the control of black scale. In Southern California there has been a decrease in black scale infection this year while red scale is becoming more prevalent, it is reported. Most effective spray for red scale is said to result when 2 to 3 lbs. rotenone are added to minimum dosage of 1 2/3 per cent of oil spray per 100 gals. of water.

Ford Leaves Kilgore Labs.

Dr. Jared H. Ford, who during recent years has been doing research work on insecticides for Kilgore Development Corp., Washington, D. C., has just left that company.

Zonite Profits Drop

Net profit of Zonite Products Corp., New York, for the six months ended June 30, 1941, was $70,281, equal to 8 cents a share on 825,626 shares of capital stock. This compares with $93,512, or 11 cents a share for the period ended June 30, 1940.

FTC Absolves Merck & Co.

The Federal Trade Commission recently announced the dismissal of a complaint which had charged Merck & Co., Rahway, N. J., with violation of the fair trade standards act.

Insecticides Not Under 40c. Minimum Wage

THE minimum wage scale for manufacturers of insecticides, disinfectants, and allied sanitary chemical products is still 30 cents per hour under the provisions of the Wage and Hours Law. Manufacturers of these products are not included in the recently issued order of a 40 cents minimum wage rate issued by the Department of Labor for the drug, medicine and toilet goods industries. In spite of the fact that a large number of insecticide, disinfectant and allied manufacturers received official notices of the newly established 40 cents drug wage minimum, and accordingly were of the belief that they might have been included under the drug group by the Department of Labor, the latter has ruled that they do not come under the 40 cents rate.

This ruling was issued by Burton E. Oppenheim of the Wage and Hour Division, Department of Labor at the request of the National Association of Insecticide & Disinfectant Manufacturers after this Association had received numerous inquiries from firms in the industry who had received copies of the official notification. Such products which do have drug applications, however, when and where the labor involved in their manufacture is separable, may bring certain departments of a plant under the 40 cents scale. But these products must be held out for medicinal uses. A cattle or sheep dip, for example, used solely to kill ticks and other insects on animals, even though used on an animal body, would be classified as an insecticide. The same is true for cattle sprays, flea powders, etc. The definitions of drugs and toilet articles under the new 40 cents wage edict of the Department of Labor follow quite closely those of the Food, Drug and Cosmetic Act.

The statement in part of the Department of Labor in ruling on the status of the insecticide (no differentiation is made between household and agricultural insecticides) and disinfectant industry, follows:

"The wage order, effective July 7, 1941, provides that all employees engaged in commerce or in the production of goods for commerce in the drug, medicine, and toilet preparations industry as defined shall be paid a minimum wage of not less than 40 cents per hour. Your attention is called to the definition on page 2 of this wage order, section 600.4, paragraph 1, showing the coverage of the definition which states that the industry includes 'Drugs or medicinal preparations (other than food) intended for internal or external use in the diagnosis, treatment or prevention of disease in, or to affect the structure or any function of, the body of man or other animals.'

"In order to determine whether or not any product is covered by this definition, it will be necessary for the manufacturer to determine whether it falls within the meaning of that paragraph. The definition is not intended to cover the chemical industry as an industry nor the disinfectant and insecticide industry. However, no blanket ruling can be given in reference to the coverage of groups of products closely related to drugs and medicines. There is apparently no clear line of distinction between drugs, disinfectants, and insecticides insofar as the above definition applies to such groups of products.

"If a manufacturer produces a substance which he calls fly spray and which he indicates is intended to kill flies, but at the same time he indicates is intended to prevent disease in animals, or will improve their bodily health or appearance, or in some other way affect the 'structure or any function of, the body of man or other animals,' such a product would apparently be ruled as coming within the meaning of the definition. This in spite of the fact that it is not the intent of the definition to cover all chemical compounds which would destroy flies. The same type of argument applies to insecticides and disinfectants.

"In general, disinfectants are not designed or intended for application to the body of man or animal. However, the manufacturer of such a product who indicates on his label or by other means that his product may be applied internally or externally for the prevention of disease, or to affect the 'structure or any function of the body of man or other animals' would be presumed to be subject to the wage order, and his employees in so far as they are engaged in commerce or in the production of goods for commerce would be entitled to a minimum wage of 40 cents per hour.

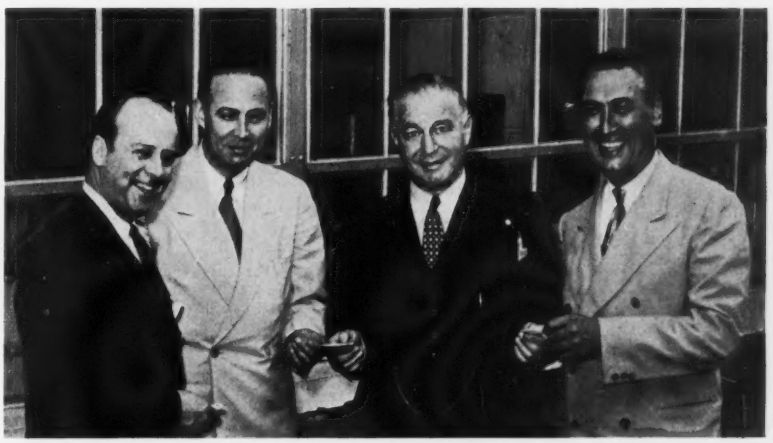
"In general fly spray, insecticides and disinfectants which do not fall within the meaning of this definition would not be covered by the wage order, and employees in those industries would be entitled to the statutory minimum of 30 cents per hour in so far as they are engaged in commerce or in the production of goods for commerce."

◆

Lambert Co. Profits Up

Profits of Lambert Co., New York, for the first six months of

Celebrating the 25th anniversary of formation of Lehn & Fink Products Corp., Edward Plaut, Lehn & Fink president, (third from left) presents service pins to J. J. Clifford, H. F. Carson and H. H. Mowers.



1941 are reported as $654,550, equal to 87 cents a share, as compared with profits for the six months ended June 30, 1940, of $514,301, of 69 cents a share.

Fuld Opens L. A. Plant

Fuld Bros., Baltimore, recently leased a building at 2444 8th St., Los Angeles, which is being equipped with machinery to supply the company's customers on the Pacific Coast. Manager of the new California division is H. C. Brumbaugh, chief chemist of the company who has been associated with the firm for a number of years. It has been announced that the plant will be in operation on September 15.

Ask Insecticide Priorities

The Agricultural Insecticide and Fungicide Association recently made application to the OPM for priority ratings on certain insecticides and fungicides. Materials on which priority ratings were requested were: copper fungicides including copper sulfate, lead arsenate, calcium arsenate, paris green, nicotine sulfate, rotenone insecticides, bentonite, cattle and sheep dips, carbon tetrachloride, hydrocyanic acid, pyrethrum, red squill, ethylene dichloride and tartar emetic. To date (July 30) priority ratings have not been granted on any of the materials in question.

Pyrethrum for Corn Worm

Oils containing pyrethrum are finding widespread use in the control of corn earworms, according to Charles W. Yerxa, agricultural inspector in charge of truck crop control in Los Angeles county writing in the July issue of *Western Grower and Shipper*. This method involves the use of a highly refined mineral oil, viscosity 100 to 150, containing 0.2 per cent pyrethrins, applied to the ears individually using a special plunger type oil can. Several firms are said to be marketing an oil containing pyrethrum for this treatment.

A.I.F.A. Plans Fall Meeting

The Fall meeting of the Agricultural Insecticide & Fungicide Association, open to all members of the industry, will be held September 11 and 12 at the Buckwood Inn, Shawnee-on-the-Delaware, Pa. At the meeting, reports will be made by association committees on traffic, publicity, credit, legislation and the effect of the national defense on raw material supplies.

Am. Home Earnings Rise

Net income of American Home Products Corp., Jersey City, for the six months ended June 30, 1941, was recently reported as $2,210,009, equivalent to $2.73 a share. Comparative earnings for the first half of 1940 were $2,157,588, or $2.68 a common share.

Germicides and pH

Most antiseptics showed greater effect when the pH of the medium was lowered. The presence of serum may make antiseptic action almost negligible, but addition of acid to iodine counteracts this to some extent. Acidified solutions, titrated after they had reacted with a definite quantity of serum, retained a much higher amount of available iodine than ordinary iodine solutions of the same iodine content.

Freshly prepared chlorine solutions in water, acidified with a small amount of dilute sulfuric acid, extended the action of chlorine in the presence of an abundance of serum for a period 10 times as long as that observed for unacidified solutions of the same chlorine content. Paul Goedrich. *J. Am. Pharm. Assoc.* **30,** 88-9 (1941).

Indian Pyrethrum

Analyses of samples of pyrethrum grown in various parts of India during 1940 showed an average content of pyrethrins of 0.87 per cent, which compares favorably with the pyrethrin content of flowers grown in other parts of the world. J. K. Lahiri, S. Ghosh and R. N. Chopra. *J. Am. Pharm. Assoc.* **30,** 72-3 (1941).

Insect Repellents

Of a number of fatty acid derivatives examined for their ability to repel the common housefly, fatty alcohols and nitriles possess a degree of repellency not found in the other derivatives. Decyl, undecyl, undecenyl, and dodecyl alcohols are highly repellent, — also aliphatic nitriles containing from 10 to 14 carbon atoms. Undecylonitrile, lauronitrile, tridecylonitrile, and dodecyl alcohol are more repellent for flies than oil of citronella, under the test conditions. Lauronitrile is nontoxic, both when applied externally and administered orally. A. W. Ralston and J. P. Barrett. *Oil & Soap* **18,** 89-91 (1941).

Rat Poison

Oleander leaves are toxic to rats but the bitter taste frequently causes rats and mice to reject food poisoned with oleander extract. The addition of 10-25 per cent of castor beans to rat food produced death in 1-5 days in all cases. The waste from the manufacture of castor oil can be used to advantage for rat poison. M. M. Likhachev and M. I. Palchevskaya. *Sovet. Vrachebnyi Zhur.* **42,** 857-62; through *Chem. Abs.*

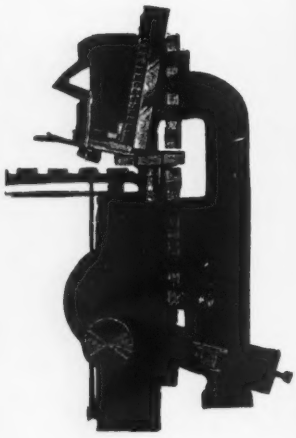
Carnauba Wax

Careful fractionation of the fatty acids present in carnauba wax showed that it contains fatty acids of an even number of carbon atoms from C_{18} to C_{30}. R. A. Bowers and A. H. Uhl. *J. Am. Pharm. Assoc.* **30,** 10-16 (1941).

New Citrus Scale Treatment

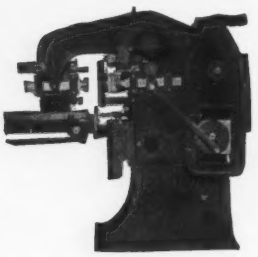
The use of a "Cardolite"-rotenone-kerosene spray for the control of various citrus scales, developed under the direction of Dr. Walter Ebeling, of the University of California citrus experiment station, is said to be giving good results. Several California concerns are now offering base solutions of "Cardolite." derris resins and kerosene or oil spray following the recommendations of Dr. Ebeling. "Cardolite" is a product of Irvington Varnish & Insulator Co., Irvington, N. J.

Special Offerings of SOAP MACHINERY *Completely Rebuilt!*

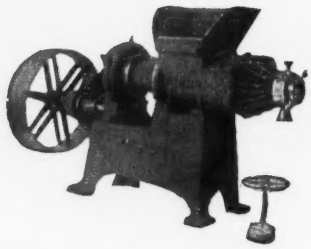


Small size fully automatic Jones toilet soap press. Capacity 150 to 200 small cakes per minute. A real buy at an attractively low price. Has been completely rebuilt in our own shops.

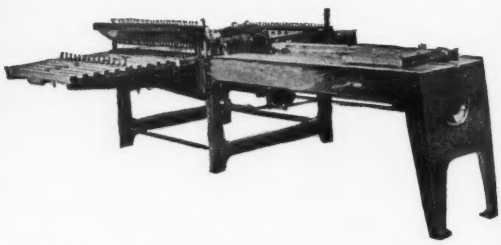
H-A SOAP MILL
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.



4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.



Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally **guaranteed.**



2 Automatic Power Soap Cutting Tables.

INVESTIGATE THESE SPECIAL BARGAINS

●

Johnson Automatic Soap Chip Filling, Weighing and Sealing Machines for 2 lb. and 5 lb. Packages guaranteed in perfect condition.

●

ADDITIONAL REBUILT SOAP MACHINERY

All used equipment rebuilt in our own shops and guaranteed first class condition.

- H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
- Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
- Ralston Automatic Soap Presses.
- Scouring Soap Presses.
- Empire State, Dopp & Crosby Foot Presses.
- 2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.
- H-A 4 and 5 roll Steel Mills.
- H-A Automatic and Hand-Power slabbers.
- Proctor & Schwartz Bar Soap Dryers.
- Blanchard No. 10-A and No. 14 Soap Powder Mills.
- J. H. Day Jaw Soap Crusher.
- H-A 6, 8 and 10 inch Single Screw Plodders.
- Allbright-Nell 10 inch Plodders.
- Filling and Weighing Machine for Flakes, Powders, etc.
- Steel Soap frames, all sizes.
- Steam Jacketed Soap Remelters.
- Automatic Soap Wrapping Machines.
- Glycerin Evaporators, Pumps.
- Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.
- Perrin 18 inch Filter Press with Jacketed Plates.
- Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.
- Day Grinding and Sifting Machinery.
- Schultz-O'Neill Mills.
- Day Pony Mixers.
- Gardiner Sifter and Mixer.
- Proctor & Schwartz large roll Soap Chip Dryers complete.
- Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
- Day Talcum Powder Mixers.
- All types and sizes—Tanks and Kettles.
- Ralston and H-A Automatic Cutting Tables.
- Soap Dies for Foot and Automatic Presses.
- Broughton Soap Powder Mixers.
- Williams Crutcher and Pulverizer.
- National Filling and Weighing Machines.

Send us a list of your surplus equipment—we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY

1051 WEST 35th STREET, CHICAGO — Phone Yards 3665-3666

Our Forty Years Soap Experience Can Help Solve Your Problems

CLASSIFIED ADVERTISING

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Positions Wanted

Chemist, man specializing for a number of years disinfectants, dips, fungicides, and allied products including some years experience with the government, seeks new position where his background and knowledge will be of value. Further details communicate. Address Box No. 185, care *Soap & Sanitary Chemicals.*

Wanted—Position wanted by young college graduate in soap, toilet goods, perfuming materials or allied line. Short experience, willing to start at the bottom. Address Box No. 184, care *Soap & Sanitary Chemicals.*

Insecticide Chemist.—Ph.D. organic chemistry. Age 30. Married. Five years' work on insecticide concentrates, including supervision of Peet-Grady testing laboratory. Address Box No. 186, care *Soap & Sanitary Chemicals.*

Chemical Engineer—Capable, reliable, thirty-five years old, married. Desire supervisory position with going soap concern. Experience in soap making, glycerin recovery, oil processing and general soap production. Can furnish best references. Address Box No. 188, care *Soap & Sanitary Chemicals.*

Sales and Executive Position, man 42 years old, successful record in building up disinfectant, insecticide and floor finishing business. Extensive background in both manufacturing and sales, and capable of operating entire business. Wishes position with future and opportunity for interest in company. Best of references as to character and ability. Address Box No. 193, care *Soap & Sanitary Chemicals.*

Sales Representative—Large acquaintance with disinfectant, insecticide and floor finishing trade in the Northwest and Central West to handle one or more lines. Thorough knowledge of the above lines and can work with the jobbers to build up your business. Can furnish the best of references and show a successful sales record. Address Box No. 194, care *Soap & Sanitary Chemicals.*

Soap Maker and Chemist desires position—man with long experience as superintendent in factories making all kinds of soaps, recovery of glycerine, etc. Also know rendering business. Address Box No. 190, care *Soap & Sanitary Chemicals.*

Insecticide Materials:—Man with twelve years specialized experience in the sale of both natural and synthetic insecticide raw materials desires to make new connection with progressive manufacturer. Knows the manufacturers of agricultural, household and horticultural insecticides thoroughly in all parts of the country. Successful sales record. Best recommendations. At present employed but can be available September 1st. For further details, write Box No. 187, care *Soap & Sanitary Chemicals.*

Soapmaker—Years of experience in making all types of soaps. Record and references on request. Address Box No. 146, care *Soap & Sanitary Chemicals.*

Twenty Years Experience in the production of shoe polishes, special white shoe polishes, floor waxes, moment-black, nitrocolors for leather, finishes, dressings; Ago-glue for shoe factories, glues for porcelain, glass and metals; metal polishes, auto polish free from wax and abrasives and many other specialties; own creations. Owner of the famous "ERI" special formulas. Finest references. Address Box No. 177, care *Soap & Sanitary Chemicals.*

Insecticide Material Salesman: Pacific Coast representative of national supplier of Cube and Derris powder to the manufacturing trade desires new connection with firm capable handling volume tonnage. Thoroughly versed in insecticides. Address Box No. 178, care *Soap & Sanitary Chemicals.*

Positions Open

Salesman Wanted: Experienced disinfectant man permanent southern territory; Liberal Commissions; Drawing Account; Old reliable manufacturer; Modern complete line. Write qualifications, territory, sales volume and full particulars for interview. P. O. Box 1501, Memphis, Tenn.

Miscellaneous

Sell tallow bleach and deodorant process. No filter, no expensive equipment. Agitation only. Over night process. Reply Box No. 189, care *Soap & Sanitary Chemicals.*

Cincinnati Firm would be interested in representing established firms offering materials for the soap industry. Address Box No. 162, care *Soap & Sanitary Chemicals.*

Rebuilt Guaranteed Machinery—Crutchers; Plodders; Jones Automatic Soap Press; Foot Presses; Proctor Soap Dryer; 12x30, and 16x40 Three Roll Water Cooled Steel Mills; 2, 3, and 4 Roll Stone Mills; Johnson Carton Sealers; Powder Filters and Mixers; Chippers, vertical and horizontal; Mixers, Grinders; Boiling Kettles; Cutting Tables; Soap Frames; Filters and Filter Presses, etc. Send for Soap Bulletin No. 402, Stein Equipment Corp., 426 Broome St., New York City.

Floor Brushes—We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Will Purchase Immediately—Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 191, care *Soap & Sanitary Chemicals.*

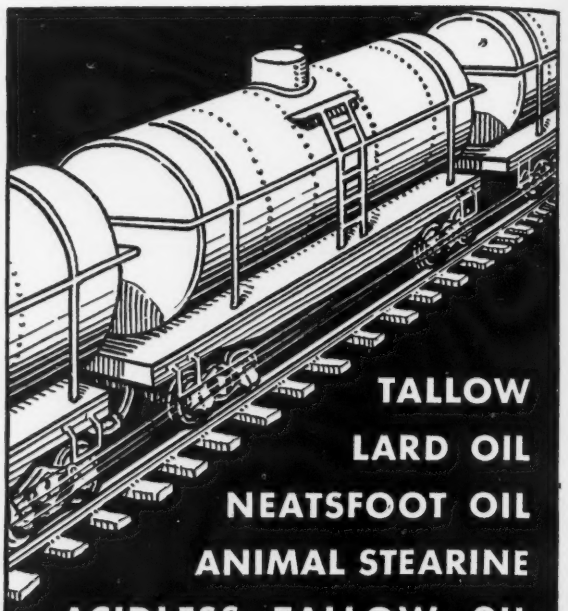
Wanted—Partnership or buy outright of sound manufacturing business of maintenance, sanitary, cosmetic products by versatile, successful manufacturing chemist. Metropolitan area preferred. Full details kept confidential. Address Box No. 192, care *Soap & Sanitary Chemicals.*

Say You Saw It in Soap!

THE average business house receives a great many inquiries for its products or services every year which cannot be attributed to any special source. A vast majority of these probably originate from some form of advertising but, due to the general tendency toward not mentioning the names of publications, cannot be directly traced.

When you write to anyone advertising in this publication, say you saw it in SOAP. The advertiser will appreciate it—and so will we!

The Publishers



RAW MATERIALS AND EQUIPMENT

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index of Advertisements, page 141 for page numbers. *"Say you saw it in SOAP."*

ALKALIES

John A. Chew, Inc.
Columbia Chemical Div., Pittsburgh Plate Glass Co.
Diamond Alkali Co.
Dow Chemical Co.
Eastern Industries
Hooker Electrochemical Co.
Innis, Speiden & Co.
Michigan Alkali Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.
Warner Chemical Co.
Welch, Holme & Clark Co.

BULK AND PRIVATE BRAND PRODUCTS

Associated Chemists, Inc. (Insecticides)
Baird & McGuire, Inc. (Disinfectants)
Buckingham Wax Corp. (Wax Products)
Candy & Co. (Wax Products)
Chemical Supply Co. (Disinfectants, etc.)
Davies-Young Soap Co. (Soaps and Floor Wax)
Empire Chemical Products Co. (Wax Products)
Federal Varnish Co. (Wax Products)
Franklin Research Co. (Floor Products)
Fuld Bros. (Soaps and Sanitary Chemicals)
R. Gesell, Inc. (Chemical Specialties)
James Good, Inc. (Sanitary Chemicals)
R. M. Hollingshead Corp. (Soap and Sanitary Chemicals)
Hysan Products Co. (Sanitary Chemicals)
Koppers Co. (Disinfectants)
Kranich Soap Co. (Potash Soaps)
Philadelphia Quartz Co. (Detergents)
Reilly Tar & Chem. Co. (Floor Seals)
Sweeping Compound Mfrs. Co. (Sweeping Compound)
Uncle Sam Chemical Co. (Sanitary Chemicals)
White Tar Co. (Disinfectants, etc.)

CHEMICALS

American-British Chemical Supplies
John A. Chew, Inc.
Columbia Chemical Div., Pittsburgh Plate Glass Co.
Cowles Detergent Co.
Diamond Alkali Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Eastern Industries
General Chemical Co.
Hooker Electrochemical Co.
Industrial Chemical Sales Div.
Innis, Speiden & Co.
Michigan Alkali Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Reilly Tar & Chemical Corp.
Solvay Sales Corp.
Standard Silicate Co.
Jos. Turner & Co.
Victor Chemical Works
Warner Chemical Co.
Welch, Holme & Clark Co.

COAL TAR RAW MATERIALS
(Cresylic Acid, Tar Acid Oil, etc.)

American-British Chemical Supplies
Baird & McGuire, Inc.
Barrett Co.
Innis, Speiden & Co.
Koppers Co.
Mirvale Chemical Co.
Monsanto Chemical Co.
Pittsburgh Coal Carbonization Co.
Reilly Tar & Chemical Co.
White Tar Co.

COLORS

Fezandie & Sperrle
Interstate Color Co.
Pylam Products Co.

CONTAINERS AND CLOSURES

American Can Co. (Tin and Fibre Cans, Steel Pails)
Anchor-Hocking Glass Corp. (Closures and Bottles)
Continental Can Co. (Tin Cans)
Crown Can Co. (Tin Cans and Steel Pails)
National Can Co. (Tin Cans)
Williams Sealing Corp. (Closures)

DEODORIZING BLOCK HOLDERS

Fuld Bros.
Hysan Products Co.

INSECTICIDES, SYNTHETIC

Associated Chemists, Inc.
Dodge & Olcott Co.
John Powell & Co.
Rohm & Haas Co.
U. S. Industrial Chemicals, Inc.
Velsicol Corp.

MACHINERY

Anthony J. Fries (Soap Dies)
Blackmer Pump Co. (Pumps)
Houchin Machinery Co. (Soap Machinery)
Huber Machine Co. (Soap Machinery)
R. A. Jones & Co. (Automatic Soap Presses and Cartoning Machinery)
Karl Kiefer Machine Co. (Filling Machinery)
Koppers Company (Coal Tar Plants, Power Plants, Valves, Castings, Pipe, Tanks)
J. M. Lehmann Co. (Soap Machinery)

NOTE: This is a classified list of the companies whichadvertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index of Advertisements, page 141 for page numbers. *"Say you saw it in SOAP."*

MACHINERY, (Contd.)

Proctor & Schwartz (Dryers)
C. G. Sargent's Sons Corp. (Dryers)
Sprout, Waldron & Co. (Mixing, Conveying, etc.)
Stokes & Smith Co. (Packaging Machy.)

MACHINERY, USED

Consolidated Products Co.
Newman Tallow & Soap Machinery Co.

MISCELLANEOUS

American Standard Mfg. Co. (Wax Applicator and Mops)
Anchor-Hocking Glass Corp. (Metal Caps)
Commercial Solvents Corp. (Emulsifying Agents, Solvents)
Crosby Naval Stores, Inc. (Pine Oil and Rosin)
Dow Chemical Co. (Germicides, Agricultural Insecticides, Fumigants)
Filtrol Corp. (Purifying and Decolorizing Clay)
Industrial Chemical Sales Div. (Decol. carbon, Chalk)
Innis, Speiden & Co. (Fumigants)
Koppers Company (Coal, Coke, Roofing Materials)
The Matheson Co. (Gases)
Pennsylvania Refining Co. (White Oils)
Pylam Products Co. (Lathering Agent)
Reilly Tar & Chem. Co. (Preservatives)
Stevens-Wiley Mfg. Co. (Packaging Dry Products)
Victoria Paper Mills Co. (Toilet Tissues)
York Chemical Co. (Mouse Seed, Ant Paste)

OILS, FATS, AND FATTY ACIDS

Eastern Industries
Emery Industries, Inc.
Independent Manufacturing Co.
Industrial Chemical Sales Div.
Newman Tallow & Soap Machinery Co
Orbis Products Corp. (Stearic Acid)
Welch, Holme & Clark Co.

PARADICHLORBENZENE

John A. Chew, Inc.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Hooker Electrochemical Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.

PERFUMING MATERIALS

American-British Chemical Supplies
Aromatic Products, Inc.
Antoine Chiris Co.
Compagnie Parento
Dodge & Olcott Co.
Dow Chemical Co.
P. R. Dreyer Inc.
E. I. Du Pont de Nemours & Co.
Felton Chemical Corp.
Firmenich & Co.
Fritzsche Brothers, Inc.
General Drug Co.
Givaudan-Delawanna, Inc.
Geo. Lueders & Co.
Magnus, Mabee & Reynard, Inc.
Monsanto Chemical Co.
Norda Essential Oil & Chemical Co.
Orbis Products Corp.
John Powell & Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.
Albert Verley, Inc.

PETROLEUM PRODUCTS

Deodorized Insecticide Base, White Oils, Petrolatum, Paraffine Oils, Residues, etc.)

Atlantic Refining Co.
Pennsylvania Refining Co.
L. Sonneborn Sons, Inc.

PHOSPHATES

Trisodium, Sodium Pyrophosphate, etc.)

John A. Chew, Inc.
E. I. du Pont de Nemours & Co.
General Chemical Co.
Monsanto Chemical Works
Victor Chemical Works
Warner Chemical Co.

PYRETHRUM AND ROTENONE PRODUCTS

Insect Flowers and Powder, Pyrethrum Extract, Derris Products)

Associated Chemists, Inc.
Derris, Inc.
Dodge & Olcott Co.
Garfield-Williamson Co.
Hammond Paint & Chem. Co.
McCormick & Co.
McLaughlin, Gormley, King Co.
S. B. Penick & Co.
John Powell & Co.
R. J. Prentiss & Co.

SILICATES

Cowles Detergent Co.
E. I. du Pont de Nemours & Co.
General Chemical Co.
Philadelphia Quartz Co.
Standard Silicate Co.

SOAP DISPENSERS

Bobrick Mfg. Co.
Chicago Precision Prods. Co.
Fuld Bros.

SPRAYERS

Breuer Electric Mfg. Co. (Electric)
Dula Mfg. Co. (Steam Sprayers)
Fumeral Co. (Pressure Sprayers, Steam, Air, CO_2 gas)

WAXES AND GUMS

Carnauba, Shellac, Candelilla, etc.)

O. G. Innes Corp.
Innis, Speiden & Co.
The Mac Lac Co. (Shellac)
Mantrose Corp. (Shellac)

PROFESSIONAL DIRECTORY

SKINNER & SHERMAN, INC.
246 Stuart Street Boston, Mass.
Bacteriologists and Chemists
Disinfectants tested for Phenol Coefficient. Toxicity Index determined by chick embryo method of Salle. Antiseptics tested by agar cup plate and other standard methods.
Chemical Analyses and Tests of All Kinds

STILLWELL AND GLADDING, Inc.
Analytical and Consulting Chemists
Members Association of
Consulting Chemists and Chemical Engineers
130 Cedar Street New York City

KILLING
strength of Insecticides
by PEET GRADY METHOD
PYRETHRINS in PYRETHRUM FLOWERS
(by Gnadinger or Seil Method)
We raised and killed more than 1 million flies in the last 2 years
ILLINOIS CHEMICAL LABORATORIES, INC.
GRIDLEY, ILLINOIS

FOSTER D. SNELL, INC.
Our staff of chemists, engineers and bacteriologists with laboratories for analysis, research, physical testing and bacteriology are prepared to render you
Every Form of Chemical Service
313 Washington Street Brooklyn, N. Y.

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Contracting and Consulting Engineers
Design and Construction of Equipment and Plants for Producing and Processing Fats, Oils, Soaps and Related Products
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offering their services to manufacturers of soaps and sanitary specialties should apprise the industry of their facilities through this professional card department. SOAP reaches 4,000 firms needing help of a professional nature.

H. A. SEIL, Ph.D. E. B. PUTT, Ph.C., B.Sc.
SEIL, PUTT & RUSBY, INC.
Analytical and Consulting Chemists
Specialists in the Analysis of Organic Insecticides, Pyrethrum Flowers, Derris Root, Barbasco, or Cube Root—Their Concentrates and Finished Preparations
DRUGS — ESSENTIAL OILS — SOAP
16 East 34th Street, New York, N. Y.

Soaps • Waxes • Polishes
Detergents • Disinfectants
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INCORPORATED
254 West 31st St. New York City

SOAPS — VEGETABLE and ANIMAL FATS — GLYCERINE — DETERGENTS
Analysis — Research — Consultation
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2 BROADWAY NEW YORK

Patents—Trade Marks
All cases submitted given personal attention
Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorneys' Fees"—Free
Lancaster, Allwine & Rommel
PATENT LAW OFFICES
Suite 402, Bowen Building Washington, D. C.

Refer To Your 1941
BLUE BOOK
for F.D.A. Method for Testing of Disinfectants and Antiseptics.
Official N.A.I.D.M. Method for Testing and Grading of Insecticides.
Free with a $3.00 subscription to SOAP.
$4.00 Foreign
MAC NAIR-DORLAND CO.
Publishers
254 W. 31st Street New York, N. Y.

. . . Official Test Insecticide

STOCKS of the 1941 Official Test Insecticide are available for immediate shipment from the office of this Association. The 1941 O.T.I. is required for all testing and grading of fly sprays by the official Peet-Grady Method. The 1941 O.T.I. will remain official until June 1, 1942.

Directions for use of the O.T.I. and the technique of the Peet-Grady Method are given in a booklet, a copy of which is included in each carton of O.T.I.

The O.T.I. is available at $5.00 per dozen bottles, plus shipping costs, to members of this Association. To non-members, there is an additional service charge of $1.00 per dozen bottles. Single bottles are $1.00 each. Check with order is required.

▼

National Association of Insecticide & Disinfectant Manufacturers, Inc.

110 East 42nd Street New York

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Wallace Thomas . . . . . Gulf Oil Corp., Pittsburgh
R. H. Young . . . Davies-Young Soap Co., Dayton, O.

INDEX TO ADVERTISERS

* For further details see announcement in 1941 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omission.

Tale Ends

SAYS a well-known reporting service from Washington, D. C.: "Don't neglect your peace-time practices." This is advice to manufacturers in all lines of business. And it is darn good advice, if you can follow it in the face of the pinch of defense requirements. For after all, some day, sometime this war will be over.—and then what?

* * *

The same service gives several recommendations for "freezing employes on your payroll." By this they mean to keep your men from wandering to other plants for a very slight increase in pay. They mention (1) pension and profit-sharing benefits, (2) more liberal personnel policy, that is group insurance, welfare plans, and less rigid rules, (3) strict rules of seniority,—as no man wants to lose his seniority in an old job, (4) show the men a real chance to advance in your factory. All are worth considering.

* * *

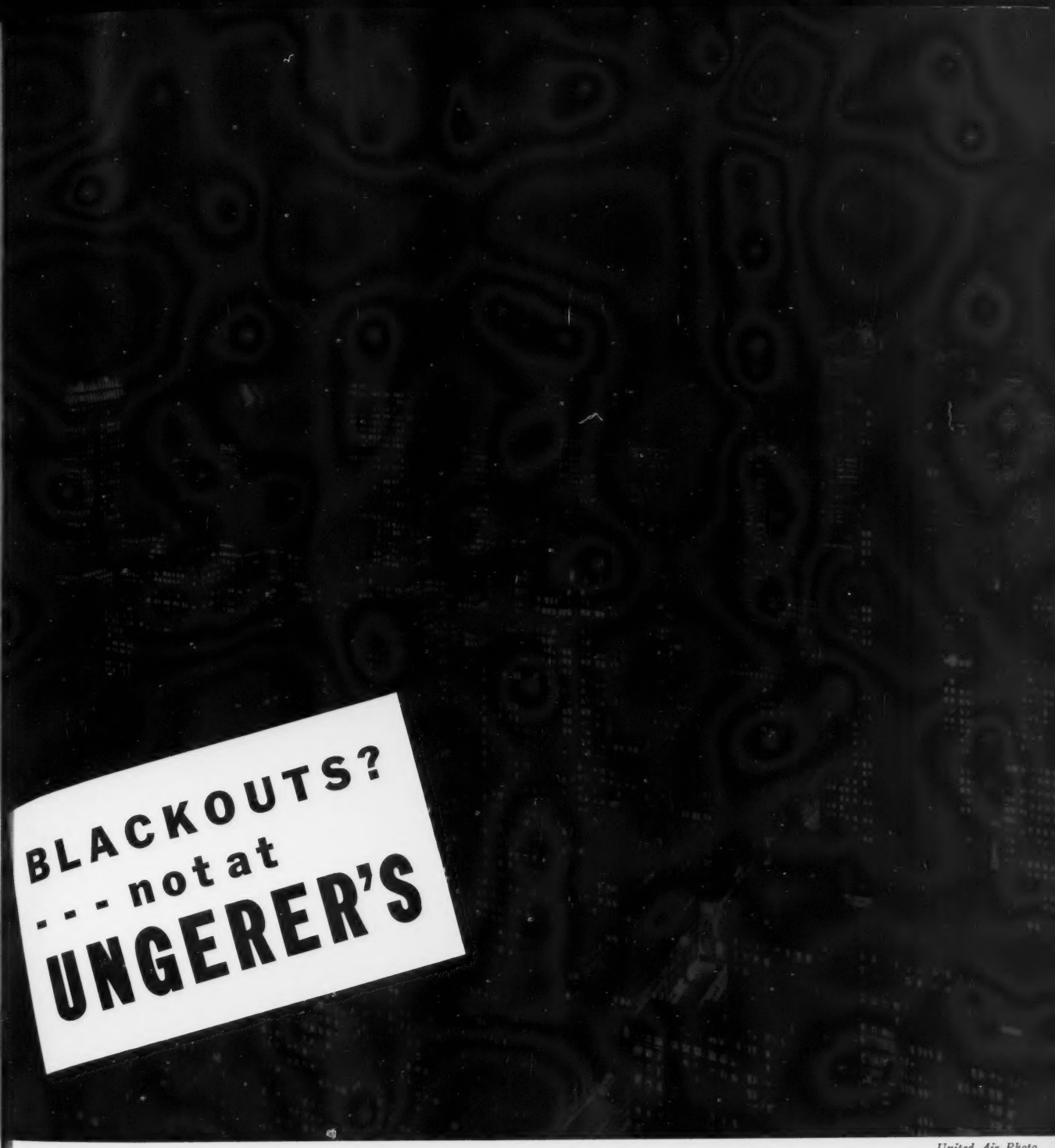
And to mention that small business men are hot under the collar as a result of the recent pronouncement from the OPM that the defense program will "hurt small industry most," is to put it mildly, very mildly indeed!

* * *

The olive oil situation is being surveyed by our editorial staff,—or at least that part of it that can still be called a "situation." In other words, we are finding out how manufacturers produce olive oil soaps when there isn't any olive oil. Report later.

* * *

Soap and Sanitary Chemicals is a member of the A.B.C. (Audit Bureau of Circulations). According to A.B.C. rules, unpaid subscription renewals must be removed from the mailing list promptly. So, don't file that subscription renewal bill. Send in your check promptly so that you will not miss any copies!



United Air Photo

The delicate problem of perfuming soap is no easy matter in peacetime. But now as various foreign sources of raw materials become endangered, restricted and blacked out, a genuinely serious problem threatens many soapmakers.

Ungerer customers, however, are hedging against the future by outlining such problems to us now, in full confidence.

To substitute appears easy BUT the *correct substitute* is a matter for the unbiased expert. We offer you that expert service.

Lighten your entire perfuming problem by calling in Ungerer & Co.

UNGERER & CO.
13-15 WEST 20th STREET
NEW YORK

GOOD NEWS

FOR THE WHOLE INSECTICIDE INDUSTRY!

The Price of Pyrethrum Flowers Has Been Stabilized at a Lower Level!

YES, this is indeed good news for the industry. Credit for this enlightened policy goes to the Kenya Farmer's Association and their American agents. While the costs of practically every other commodity are rising, the price of pyrethrum will be low enough so that there will be no need to use substitutes.

This cooperative attitude on the part of the growers and their agents is reflected in a lower price for Pyrocide 20 and an assurance on our part that we will make contracts for delivery until September 1, 1942, *at this lower price.*

Think what this means! You improve your product —get surer, quicker kill and kill a greater variety of insects. Reduced prices enable you to use your old favorite, pyrethrum, in place of pyrethrum-substitutes.

Making a contract now assures your supply — enables you to make your plans for the new season in certainty that you will be able to make the best insecticide at your price!

PYROCIDE 20—*DEODORIZED, CLARIFIED* —Absolute top quality. Practically odorless except for the pleasant floral aroma of pyrethrum flowers. Will not stain curtains or wallpaper. The purest form of pyrethrins commercially available. Guaranteed to contain 2 grams of pyrethrins per 100 cc (Seil method). Now at new low prices.

PYROCIDE 20 — *REGULAR* — The original, chilled, filtered, standardized pyrethrum concentrate. Offered at 20c per gallon less than Pyrocide 20, Deodorized, Clarified.

Write Today for Full Particulars and Prices!

McLAUGHLIN GORMLEY KING COMPANY • Minneapolis, Minnesota

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PYROCIDE 20

THE PUREST FORM OF PYRETHRINS COMMERCIALLY AVAILABLE